THE

WESTERN JOURNAL

AND

Civilian.

M. TARVER & H. COBB, Editors and Proprietors.

VOL. VIII. MAY, 1852. NO. 2.

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ARTICLE I.

Protection of American Industry.

Hitherto, in discussing the principles of political economy, we have aimed to give direction to individual pursuits rather than to public policy. For we trusted that, if the people could be made to understand their true interests—the power being in their own hands—the policy of the Government, as a natural consequence, would conform to their wants. But the success of many important pursuits in this country depends so much upon the action of the national legislature, that it is scarcely possible to discuss any branch in public or private economy profitably without reference to the policy of that body.

There is a peculiarity in the political condition of the United States which, in our opinion, has not been sufficiently studied by the people of this country. In theory, our political independence is as complete as we could desire it to be; but we are subjected to a system of commerce which is controlled by a foreign nation. And without protection against the centralizing tendencies of that system, our condition would be little better than was that of the American colonies before the revolution. We are not yet free from the power of Great Britain. It is an abuse of terms to call a people independent when the rewards of their labor, the price of property, and the choice of pursuits are controlled by a foreign power.

We would not cut off all foreign commerce; such a step would be in violation of the laws of both natural and social economy, but we regard it as the true policy and duty of every nation to devise and estab-

lish a system of public economy calculated to develop its own natural resources, and make the rewards of labor, and the price of property independent of foreign powers. These should be regarded as cardinal points in the policy of every country.

Commerce, throughout its entire range of operations from the barter of specific articles among savage tribes to the most extended and complicated traffic between civilized nations, proceeds upon the selfish principles of man's nature. Under all its forms and refinements, it is still a *bargain* in which the parties continually look to their respective interests, each seeking to gain an advantage over the other. And hence, as a general rule, the advantages are in favor of the less needy. The capitalist is not compelled to exchange his commodities without a profit, but the wants of the operative continually urge him to bestow his labor, or part with the products of his toil upon the best terms offered.

Capital and productive skill are the chief elements of commerce, and wherever these most abound, the advantages of trade will be in favor of those who possess them. The wealth of a nation, and the comforts of its constituents, consist more especially in the variety of its products than in the amount of money produced and employed in commerce. When the production of a commodity is once established in quantity equal to the home demand, it constitutes a permanent item of national wealth, the exchanges previously required to obtain it in foreign markets are no longer needed for that purpose, and if the money price of production should even exceed that of a foreign article, it is nevertheless a national gain, provided that by reason of its production at home, the nation is not compelled to increase its imports of other commodities.

These principles were illustrated by the condition of the American colonies anterior to the revolution, and the Statesmen who formed our constitution, and gave the first direction to the policy of the Government under that instrument, seem to have appreciated the importance of our commercial as well as political independence. But their opinions and policy have been repudiated by the modern school of public economists whose chief object, as it would seem, is to establish a policy which must in time, as we believe, subject our commerce to the unqualified control of British capital. One of the leading ideas of this school is that of enriching the nation by supplying Great Britain and Europe, generally, with bread stuffs and provisions. And as one amongst other in-

ducements to Great Britain to purchase these articles, they succeeded, some years ago, in reducing the duties on iron. Now, as this article constitutes a large item in our commerce, and its utility is supposed to be understood and appreciated by every intelligent mind, we have selected it as an instance, to show how signally the friends of free trade have failed in their expectations of enriching the country by the exportation of bread stuffs and provisions.

The total value of bread stuffs and provisions exported to all countries during the year ending 30th June 1846, was $27,701,-121. The amount of exports was greatly augmented by the famine in 1847, but in 1850 it had declined to $26,051,377, and in 1851 to $21,948,651, being $5,752,470 below the amount exported in 1846, the year preceding the change in the duties on iron. In the mean time, the value of iron imported has increased from $2,838,954, the amount received during the year ending 30th June, 1846, to $9,123,862, imported during the year ending 30th June, 1851. Thus it is shown, that while we paid $7,285,908 more for iron in 1851 than in 1846, our exports of bread stuffs and provisions were $5,752,470 less. And even if we take the annual average value of exports of bread stuffs and provisions for the five years preceding 1846, it will be found that the increased value of iron imported since that period, is about $3,000,000 more than the increased value of bread stuffs and provisions exported.

The following statement extracted from the report of the Secretary of the Treasury shows at a single view the effects produced by the existing tariff upon the production and consumption of iron in this country:

The importations of bar and pig iron for the year ending 30th September, 1842, were	100,055	tons.
The estimated production in the United States for that period was	230,000	"
Making an aggregate consumption of	330,055	"
Or 40¾ pounds per head.		
In 1846, the importations were	69,625	"
And the production estimated at	765,000	"
Consumption	834,625	"
Or 92 pounds per head.		
In 1848, the importations were	153,377	"
and the production	800,000	"
Consumption	953,377	"

Or 99¾ pounds per head.		
In 1848, the importations were	289,687	"
the production	650,000	"
Consumption	939,687	"
Or 95⅞ pounds per head.		
In 1850, the importations were	337,532	"
the production	564,000	"
Consumption	901,532	"
Or 86⅞ pounds per head.		
In 1851, the importations were	341,750	"
the production	413,000	"
Consumption	754,750	"
Or 69¾ pounds per head.		

It will be perceived from the foregoing statement that the production of iron in the United States has fallen off nearly one half since 1836. And consequently, about one half of the capital invested in the iron business has been lost, or is lying idle. And while the producers of bread-stuffs and provisions have gained nothing from an increase in the foreign demand, they have lost one half of their home customers, who were formerly engaged in the production of iron. It is true that the price of iron has been reduced, but it is most evident that the producers of bread-stuffs and provisions are less able to pay for it now, than when it was made at home. For it will be seen by reference to the foregoing statement that the annual consumption per head has fallen off from 99¾ pounds in 1848 to 69¾ pounds in 1851, a decline of nearly one third in three years. If our worst enemy had devised a scheme to retard the progress, and check the prosperity of the country, he could scarcely have conceived a measure more to his purpose than the tariff regulations of 1846, especially those which relate to the iron trade.

So much has been said and written touching the protection of American labor, and the opinions of men upon this subject are so completely governed by party politics, that we feel as if engaged in a hopeless undertaking when attempting to argue it before the country. We have felt convinced ever since the adoption of the present system that it was useless to oppose it by facts or arguments, until like the law of 1832, it should prostrate every department of business. Our only hope is that the friends of the present system, with the revolutionary scenes of 1840 fresh in their recol-

lections, will watch the signs which indicate the gathering storm, and avert the coming evils before it is too late to save the country from another terrible revulsion. Hence, instead of a labored discussion of the principles of free trade and protection, we shall simply aim to call attention to some of the more prominent phenomena which seem to forebode the approach of evil.

Amongst the first to be noticed, is the decline both in the production and consumption of iron; for we hold it to be true, beyond contradiction, that a continuous and permanent decline in the general use of this article affords conclusive evidence of decay in those leading pursuits upon which the prosperity and progress of a people mainly depend. The suspension of labor-saving machinery and the decay of our cotton factories, while the demand for and importation of foreign fabrics are daily augmenting, are facts calculated to startle the American mind, and lead men to inquire whether new sources of wealth have been discovered and developed sufficient to compensate the suspension of the machinery, and purchase an increased quantity of foreign goods. But the increased demand for banking facilities would seem to indicate that no such resources have been discovered. Indeed, it is evident that excessive banking is now resorted to as an expedient to supply the place of production, rather than to assist in the development of new resources.

The produce of Gold in California may sustain the present system for a season—perhaps for several years—but every expedient must fail in time if we continue to rely upon Great Britain for iron, and permit our manufactures to fall into a state of decay. If we would progress or even maintain our present condition, we must diversify our products, increase our machinery, and furnish employment for our citizens. Already the streets of our cities, towns and villages are thronged with men without employment: men whose time and labor are not only lost to themselves and the community, but who manage in some way or other to subsist without remuneration upon the substance of others. For the want of suitable employment, they are continually in danger of falling into vices ruinous to themselves and hurtful to the community. Indeed, the peace of the country, and the permanency of our institutions depend in a great degree upon the protection of American labor. It is not in the nature of an American citizen to sink into a state of hopeless pauperism. He may become idle and

vicious, but he still cherishes the hope of bettering his condition, though the means which he proposes may be of the most desperate character. Hence, if nothing better offers, he is ready to embark in an unlawful enterprise against a neighboring government and jeopardize the peace of his own country. And, desirous of change, his support may even be counted upon as certain, by the discontented and ambitious demagogue who may aspire to dissolve the Union of the States.

If America shall ever attain that glorious destiny which has been so often predicted, that destiny can only be reached by the development of her own natural resources—by the employment of American artists and operatives in the production of every commodity that can be desired by a civilized people; by a more thorough diffusion of useful knowledge, and by elevating the moral standard of all classes. And we hold it to be amongst the highest duties of the General Government to promote the attainment of these objects by the use of every means placed within its power by the Constitution.

But many intelligent and good men object to the protection of American manufactures, because such protection abridges the privileges of the consumer and creates a monopoly in favor of the producer.

This objection is plausible, and to a limited degree is founded in truth. But if protection be necessary to the prosperity of the country, which we think every intelligent and unprejudiced mind must admit, the temporary inconvenience and apparent injustice incident to the introduction of a new measure should be viewed in the same light that we regard our ordinary pursuits and undertakings, which always require an expenditure of labor or capital, before we can enjoy the profits of either.

But it is only in a limited sense that protection can be regarded as a monopoly. It is a national monopoly so far as it excludes the products of foreign countries: it can only operate as an individual monopoly in favor of those who may already be engaged in producing the protected commodity until others can make arrangements to enter upon the same pursuit. And as the field of competition is left open to all, it will not be long before the profits accruing from the production of the protected article will be brought to a level with those derived from other pursuits. And in this country, with but few exceptions, permanent protection has ever been

the means of bringing the cost of producing the protected commodity below that of foreign countries.

Why, then, it is asked, if this be true, should protection be required? This is a pertinent question, and deserves a serious answer. The producing capacity of Great Britain exceeds the demand in almost every branch of manufactures as well as in mining; the buildings and machinery have been constructed and paid for, and would be valueless without employment; the operatives have been trained to their respective occupations, and would suffer for bread were their employment to cease: from these and other causes there is a constant tendency in that country to over-production; and to avoid competition in the home market, the producers ship their surplus fabrics to the United States to be sold here for such prices as they will bring. Their condition enables them to make sacrifices in the sale of a portion of their goods, and if losses are to be incurred, it is their policy to make the sacrifice in our markets where they can do us the most injury. Hence it is obvious that without protection few individuals in this country would invest their means in buildings and machinery, while so many advantages exist in favor of the British manufacturer. We possess every important element of wealth common to Europe, with the addition of many which do not exist on that continent; but in subjecting these elements to useful purposes, we are compelled to labor against the capital and pauperism of Great Britain. And hitherto we have contributed largely to the support of both. These burthens impede our progress: and unless we cast them off, they will most surely, in time, reduce the rewards of American labor to the British standard.

ARTICLE II.

Railroad from St. Louis to New Orleans.*

An article contained in the February number of the Western Journal, relating to Railroad connection between St. Louis and New Orleans, has been read with much attention, throughout the lower part of the valley of the Mississippi; and the suggestion will doubtless continue to engage the profound interest of the citizens of these two great commercial cities, as well as those of the vast country lying on and near the route, through which such a road must pass. It is creditable to the city of St. Louis, and an earnest of her fealty to the undivided interests of this great valley, that the suggestion originates there. And on behalf of my fellow-citizens of Louisiana, I would venture most heartily to respond to the proposition by an assurance, that as fast and as far as possible, New Orleans and Louisiana will vie with St. Louis and Missouri, and all the intermediate country, in the alacrity with which this iron chain shall be forged, linking together the destinies of the two cities.

Permit me, Messrs. Editors, in the infancy of this great enterprise, to make a suggestion, relating to the several routes, which naturally present themselves in looking over the map of the valley, and to give my own views as to which of all seems to me the most eligible.

The union of the two cities, *indirectly*, is likely very soon to occur, from Railroad enterprises already in some progress.

The New Orleans, Jackson and Nashville road will intersect the Mobile and Ohio road, at some point in North Mississippi, and the Illinois Central Railroad from Cairo to Chicago will intersect the Cincinnati and St. Louis road at some point near Vandalia. Thus the Railroad distance from New Orleans to St. Louis will not exceed 775 miles; but will be measured on no less than four distinct and independent Railroads.

If this broken connection would answer the purposes of commerce and travel, we might now commence our rejoicing, that the enterprise has so favorable a commencement, in all the several independent links of the chain.

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* We are gratified to learn that our project of a Railroad from St. Louis to New Orleans has attracted the attention of many talented and public spirited individuals of Louisiana, and we take pleasure in submitting to the consideration of our readers the following suggestions of Professor Forshey in respect to the route west of the Mississippi river. The shortest route in respect to time is that which we most desire. There are some reasons which would induce us to cross the Mississippi at Helena, but we are wedded to no particular location, and are truly grateful to the author of the following article for his suggestions respecting the route west of the river. A gentleman of high attainments and well acquainted with the topography of Southwestern Missouri, has promised to prepare an article describing that part of the State, for publication in our next issue.—*Ed.*

But such will not be the case; for the interests of the two cities as well as those of a vast and but partly developed region of the best lands for the support of a dense population, will demand another, and an independent route, relying on the caprices of fewer States, and better adapted to commanding the highest interests of the States traversed.

The route you have indicated (or rather suggested, for I do not understand the writer as being partial to any special route) would lead from St. Louis to the Iron Mountain region, as designed some years since; and thence by way of the St. Francis valley, to reach the New Orleans and Nashville route somewhere in Mississippi.—Let us see whether this would give any advantage over the routes through Illinois, Kentucky and Tennessee.

The distances you will find nearly the same, perhaps 25 miles may be gained in distance. But the route, passing as it does from the Iron Mountain through the less fertile and productive portions of Missouri as well as Arkansas, would fail to enlist the strongest interests of either State; and the direction it would take in the State of Mississippi, would be such as to develop no new or very valuable interest; it would not, I think, meet the local support and legislative favor, likely to be accorded to great leading enterprises. Louisiana could have no direct interest in the road.—These considerations induce me to suggest a line, lying wholly west of the Mississippi river, having a length differing very little from either of those above described; but possessing the advantages of lying within the three States of Missouri, Arkansas, and Louisiana: of developing the resources of some 500 miles of the very best agricultural country; of presenting a substitute for the bad and precarious navigation of all the region traversed; and of being likely, from its prominence and extent in each State, to command the greatest legislative and individual favor.

The line I would suggest, in the absence of surveys, but from a tolerably good personal knowledge of two-thirds of the whole line, would commence at St. Louis, pass thence to the East of the Iron Mountain; thence southwardly between the waters of the St. Francis river, and the Big Black Bayou, probably crossing this stream in the upper part of Wayne county, Mo., and again in the southern part of Randolph county, Ark.; then it would run south along the valley of the Cache on either side, as the grounds might indicate, and reach White River at Rock Roe. Crossing White river at Rock Roe, the point at which it is proposed to cross the great western road from the Mississipi river through Arkansas,—the line would cross the Arkansas river at or near the mouth of Bayou Meter, thirty miles below Pine Bluffs; and pursuing a line nearly due south, would cross the Bayou Bartholomew at the northern line of Desha county, Ark., and again in Moorhouse Parish, La.; cross the Ouachita at Monroe, where the great route

from the Mississippi river to Shreveport and Texas is proposed to cross the river. From thence it would pass down near the Castor and cross Little River at Dugdemona, and Red River at Alexandria.

Thence taking the route of the road already constructed, it would pass to Cheneyville and Opelousas. Thence the line would be identical with the New Orleans and Opelousas Railroad, by way of Berwicks Bay and Thibodeaux, to Gretna and Algiers, opposite New Orleans.

Distances by this route would be approximately as follows:

From St. Louis to the Iron Mountain		80	miles.	Total.
Thence to the Arkansas line		80	"	160
"	Rock Roe or White river	140	"	300
"	Arkansas river	45	"	345
"	Louisiana State line	80	"	425
"	Monroe on Onachita river	30	"	455
"	Alexandria on Red river	75	"	530
"	Opelousas	70	"	600
"	New Orleans	175	"	775
	Total	775*		

The crossings would all be upon drawbridges, except at Berwicks Bay, and perhaps at the Arkansas river.—White river, the Bartholomew, the Ouachita and Red river, all offer good facilities for bridges. The Rapids of Red river immediately above Alexandria, afford a good foundation for any desired structure.

It is worthy of remark that this line would cross two streams of the first class at points already indicated for great Railway crossings, and the same structure would answer for both. And each of these transverse routes offers facilities for those who choose to diverge from the line, and by transverse route, pass eastwardly to the New Orleans and Nashville line, and by that route, reach the city in about the same distance, as by the proposed route. The proposed line, then, resolves itself into the building connecting transverse links to the other great lines, about to be constructed; the first connecting the Cincinnati, St. Louis and Pacific Railway with the Charleston, Memphis, Little Rock, and Red river Railway, by a link from St. Louis to Rock Roe, 300 miles long. The second connecting the latter road with the Savannah, Montgomery, Vicksburg, Shreveport and Texas Road, by a link from Rock Roe on White river to Monroe on the Onachita, 155 miles long. The third connecting the latter named road with the New Orleans, Opelousas and Elpaso Road, by a link from Monroe to Opelousas, 145 miles.

* Of this distance, 245 miles may be considered as in satisfactory progress. The company is now being organized for building the New Orleans and Opelousas road, and the Alexandria and Cheneyville road will doubtless be extended to Opelousas by the time of the completion of the former.

The topography of this route presents not a single obstacle in the way of grades from New Orleans, for a distance of 630 miles, say to the middle of Wayne county in Missouri. A few sandy hills, on the Castor, between Alexandria and Monroe, easily skirted without serious deflections, and easily excavated where necessary, and a few similar ones on the divide between the Bartholomew and the Arkansas, are the only departures from a nearly level plane, until we reach the broken country, about the sources of the St. Francis and the Big Black, in the State of Missouri. From this region to St. Louis, the writer has no very definite knowledge of the surface of the country. But as the diluvial formation yields in the South of Missouri, along this line, to the carboniferous and silurian beds, I take it for granted, from analogy, that the country is broken. The regions yielding copper, lead and iron, are not likely to possess very gentle phases. But the portion of the line of which the writer claims a good general knowledge, (and of more than half, a detailed personal acquaintance) presents no obstacle in its topography to the construction of a railroad at the minimum cost.

The greatest obstacles that present themselves are the crossings of the streams: and these, it is freely confessed, are very formidable. There would be required no less than 5 drawbridges, possibly six; and one if not two crossings with Railroad ferry-barges.

Yet with all these, supposing them to cost a million of dollars, I will hazard the opinion that it is, by twenty per cent, the cheapest route that can be named, for a Railroad connecting the two cities.

By this route, there would be about thirty-five counties traversed, of which not more than ten have good perennial navigation or easy access to market; and not more than fifteen have their resources developed, and their lands, however fertile, brought into cultivation, for want of a ready market.

These lands would be readily granted, whether belonging to the States or the United States, for aid in the construction of the road. It is not over-estimating the resources of such an enterprise, to suppose that the counties along the route and near it, would contribute one-fourth of the whole cost in labor, materials, and self-imposed taxes. The lands, say alternate sections for 10 miles wide, or scrip, in lieu, when the lands have been sold, would yield near another fourth. If, then, the States would, as is probable, lend *credit* to the company, to purchase iron on time, taking a lien upon the road for security against loss, it would leave but about one fourth (or less) of the stock to be raised by private subscription. The two cities and the many intermediate towns on the line, would not fail to raise this and much more, if necessary, to complete so stupendous an enterprise.

It may look like a visionary scheme for this age;—but men are

learning to be cautious about the use of the word "*visionary.*" To some persons all suggestion for *progress* looks visionary. The great Erie Railroad passes through a country of not one-third of the fertility and productive capacity, and connects points of vastly less demand, considering the connections already existing between the lakes or New York city. That work cost twenty millions of dollars; this will not cost ten millions, and will traverse nearly twice the length of country, and of vastly superior fertility.

Let St. Louis make a movement for a mere recognizance of the route, and doubtless New Orleans will respond in half the expense of such an examination, as will place the matter in a favorable light before an enterprising and enlightened public. If these suggestions seem valuable, they are at your service. If you could add any information as to the topograghy of that portion of Missouri, lying along the line, it would doubtless be useful light on the subject. The line contemplated, in suggesting Helena as the terminus on the Mississippi river, would be the same as here described to a point not far from the Memphis road, in Arkansas.

Very respectfully submitted by

CALEB G. FORSHEY, Civil Engineer.

Oleanda, Carrolton, La.

ARTICLE III.

Causes of Steam Boiler Explosions.

A treatise upon the causes of steam-boiler explosions, and the proper remedies to prevent them—with drawings for their elucidation. Presented to the Senate of the United States, February 6, 1852, by A. Guthrie, engineer, of Chicago, Illinois.

It is remarkable that in an age so fruitful in discovery and improvement, no plan has yet been devised and reduced to practice, which has materially lessened the dangers incident to travelling on steamboats upon the western waters. The learned chemist and ingenious mechanic have labored for many years to discover the causes and guard the traveller against the terrible effects of explosions, and still the loss of life and property from that cause is scarcely less frequent in proportion to the number of boats, than it was twenty years ago.

We have long entertained the opinion that explosions are occasioned by reason of defective material, unfaithful workmanship in construction and unskilful and reckless engineering rather than

from a lack of knowledge respecting the properties of steam. And this opinion has been confirmed by the perusal of Mr. Guthrie's memorial to Congress.

Mr. Guthrie is a practical engineer who has devoted much time in searching out the causes of explosions, and we feel strong confidence, that by the use of his invention and the regulations which he suggests to Congress, the principal danger, incident to steamboat travelling, will be removed. And we sincerely hope that the Government at Washington will afford him the means necessary to test the value of his invention, and a liberal reward for his labors. Should his plans succeed in guarding the traveller and owners of property against disaster by explosion, he will be entitled to the gratitude of the country and regarded as a benefactor of the age.

The memorial occupies too large a space to authorize us to publish it entire. The following extract will show the nature and results of the investigations made by the author.

"For the purpose of learning more fully the real causes of the frequent explosions of steam-boilers upon the western rivers, and to be the better able to apply the proper correction, I set out with a determination, personally, to inspect every steamboat navigating the Mississippi or any of its tributaries. After eight months of constant application, I became satisfied that it would be next to impossible for any one individual to procure the measurements that would be required of the machinery of all these boats; but having succeeded in the examination of nearly three hundred of them, which being somewhat less than one-half of all that are supposed to be running upon these waters, I cut short the examination. I presume, however, that those which I have examined will give me a pretty good idea of all those remaining; I presume, too, that my information might not have been very materially extended by a consultation with the engineers belonging to them. Having already consulted with a large proportion of those in care of the boats from which I had taken the measurements, I the more willingly yielded to the necessity of closing the examination. I have selected two hundred, from the three hundred of these boats, the measurements of which would be the most likely to give me a correct understanding of the proportions, forms and arrangements of all that may be remaining."

"I am fully persuaded, from all the information I could obtain from these sources, together with a somewhat extended experience of my own, that in a very great majority of all the explosions of boilers upon the western waters, the causes were the direct result of *negligence*, *carelessnesss*, or *reckless imprudence on the part of the engineer*. Against these causes to seek remedies, and make proper application of them, requires a stronger arm, a higher power, than individual effort or individual example; therefore I suggest a direct application to Congress for the enactment of such

laws as may, in their wisdom, seem necessary to guard against and insure safety from these explosions."

The memorial concludes with the following suggestions:

"*Recapitulation of the principal causes tending to produce explosions of steam boilers.*—1st. Using iron of an improper thickness, or that of an inferior quality, in the construction of boilers; also, the too frequent use of cast-iron in steam and water pipes, and parts of boilers.

2d. Using boilers defective in form or workmanship, ineffectually stay-bolted or fastened; and also, using boilers weakened by age or use.

3d. Employment of incompetent, reckless, or intemperate engineers.

4th. Using in the construction of steamboats, boilers, engines, paddle-wheels, and machinery, without proper regard to the relative proportions which should exist between the different parts of the whole.

5th. Using inefficient or unsuitable pumping apparatus, and not providing for free and open passages for the water to the boiler, and afterwards for the exit of the steam to the engines.

6th. In not providing a suitable or a sufficient number of safety-valves for the free and full discharge of steam when suddenly accumulating.

7. Want of a proper and suitable system or mode of inspection of steam-boilers, engines, and machinery; want of suitable and uniform instruments for testing, by hydrostatic pressure, the actual powers of resistance of every boiler brought into use; and also an entire want of laws requiring an inspection of boiler-iron, or material for the construction of boilers.

8th. Want of competent and faithful inspectors, clothed with sufficient authority to regulate the conduct of engineers, and the management and general arrangement of engines and machinery, with power to establish a limit to excessive pressure, within the capabilities of the boilers to withstand it.

9th. Want of a board of supervising engineers, whose duty it is to exercise a general surveillance over all boats or vessels navigated in whole or in part by steam, within the jurisdiction of the United States; and also to exercise a like surveillance over boards of inspection, conduct of engineers, and others in charge of steam engines.

Enumeration of the causes tending to produce explosions, through the conduct of those in charge.—1st. Allowing water to get low in the boilers, through negligence, carelessness, or design.

2d. Overloading the safety-valve, and permitting a dangerous accumulation of steam, for the purpose of racing or wanton display.

3d. Through negligence in not blowing off steam when lying at a landing, or when the engines are not in motion.

Remedies proposed.—1st. Require, that in the manufacture of all steam-boilers hereafter to be made, the best material shall be used, and that of a proper thickness; abandon as far as possible the use of *cast* iron in any part of boilers, steam or water-pipes, where they are likely to be subjected to great pressure.

2d. Never allow the use of a defective boiler in any case, whether it be defective in form, workmanship, age, or use.

3d. Employ competent, prudent and careful engineers, granting certificates to those who are worthy, and prohibiting the employment of the incompetent and intemperate from running engines where life or property may be endangered.

4th. Instruct the board of supervising engineers, as soon as may be practicable, to recommend or establish such relative proportions between all the parts of boilers, engine, paddle-wheels, pumps and machinery, as will insure in the best manner safety of life and property; also, to establish such rules and regulations for the conduct of engineers and management of engines as will give, as near as may be, a uniformity throughout the country. Instruct this board to meet as often as may be deemed necessary, for the purpose of joint consultation, to recommend improvements, to make rules to be observed by the different boards of inspection, to equalize as far as possible the operation of any laws which may be hereafter enacted, and to see that all are faithfully and rigidly carried out.

5th. Provide the most ample and certain means for supplying the boilers at all times with water, guarding against a possibility of a want of a full and ample supply.

6th. Provide suitable and proper safety-valves for each and every steam-boiler hereafter to be used, and such as will at all times afford a certain and free discharge of steam when suddenly accumulating.

7th. Establish a system of inspection that shall be uniform throughout the country, subjecting to hydrostatic pressure every boiler to be used for purposes of steam power, to three times the pressure to which the engineer shall ever be allowed to use it.

8th. Appoint competent, faithful and honest inspectors in such places as the steam navigation of the country shall require; clothe them with proper authority for the faithful discharge of the important duties of inspection, giving them a proper control over the conduct of engineers and the management of engines and machinery.

9th. Pass such laws as will be most likely to insure the faithful performance of the duties of engineers, inducing them to keep a regular supply of water at all times in the boiler, and never to subject them to undue pressure.

I feel every confidence in expressing an opinion that if these few recommendations shall be faithfully carried out, explosions of steam-boilers will no longer occur. From many years of practical experience, and a long and careful investigation of this subject, I have become well satisfied, in my own mind, that there never has been a single explosion in this country but what could be traced directly to some one of the causes I have enumerated, but which might have been prevented by *prudence* and *care*.

I feel such confidence in the above statement, that I would be willing to choose blind-folded any steamboat in this country, and run her to any port within it, and return, without the least danger of explosion. I would do it simply by the exercise of prudence and care.

It is true, that there might be defects in some parts of her boilers or machinery that I could not discover, and which might prove fatal to my success. It is for the purpose of discovering these defects, and applying the proper remedy, correcting the evils that to-day exist, and providing against the present dangers that surround us, that we call upon the Government for its aid.

It seems to me that money can have no weight against a successful effort to cure this great evil. Individually, I have probably devoted more time and means pursuing the investigation of this subject than any one individual in this country, and even up to this day without a prospect of remuneration; yet, if the evil can be corrected by any effort of mine, I shall feel that I have not lived altogether in vain.

It may perhaps appear to some that I bear too heavily upon the main body of engineers; but allow me to remark that I am an engineer myself, engaged in this avocation as a means of subsistence, and that I am not insensible of the many difficulties against which engineers have to contend, nor am I insensible, on the other hand, of the great sacrifice of life and property which has been the penalty of explosion. I consider that the true interest of all will best be promoted by concealing nothing, but rather to make an open and frank avowal of all the causes co-operating to bring about these sad events, and then bespeak that aid which I am sure none will withhold.

It appears to me that I have now gone as far in my recommendations as would be necessary to secure perfect immunity from explosions, and as far as legislative aid can go to promote the same object; and here I should have left it, were it not that pecuniary interest exerts such a strong influence over the conduct of men, as induces them oftentimes to evade the most salutary and wise provisions of law, at any prospect of gain. In the measures I have proposed, I have endeavored, as far as possible, to restrict myself to such recommendations as should require no great sacrifice of property, or make any great innovation upon the present

established system of navigation; or which would insist upon any great estrangement of individual prejudice or preconceived opinion; keeping steadily in view, however, the importance and necessity of checking *effectually* this alarming evil. But, after all, I do not suppose that any law can be so framed or administered, that evasions and abuses will not creep in; and my labor would only be partially accomplished, should I leave the passengers without every safeguard that can surround them from these impending dangers.

Therefore, as an additional security, I set about devising some plans to accomplish this necessary object; and for this purpose I have invented an apparatus designed to be placed in the cabin of every steamboat, always open to the inspection of any passenger, to be protected by suitable laws against all interference by the engineer or officers of the boat, and locked up by the local inspectors, the keys being detained by them (as in the public mails.)

This apparatus is designed expressly for the benefit of the passengers, and will, by means of a dial-plate, always register the exact stage of the water in any of the boilers, and give instant alarm, by ringing a bell, of any negligence or want of care on the part of the engineer.

This dial-plate is so constructed that when there is a safe stage of water in the boilers, the words "GOOD WATER" will appear on the surface of it; but at the instant the water begins to go down, the words "good water" are removed, and the words "WATER GETTING LOW" will take their place, and the bell be rung to call attention to it. Now, if the engineer allows this call to be neglected, the water gets still lower, the words "water getting low" will be removed, and the words "WATER DANGEROUS" will take their place, and another bell will be rung to direct attention to it, and both bells will ring until water is supplied. The principle upon which this operates is believed to be entirely new and original.

Close by this indicator is placed another, which gives at all times an exact register of the pressure on the boiler, operating nearly in the same manner as the water-indicator, by which the least variation of pressure will be detected, even if it should exceed by a single pound the pressure which was permitted by the inspector; the words "STEAM SAFE" will be removed, and the words "DANGEROUS STEAM" will appear in its place, and a bell will be rung to call attention to it.

The plan of operation intended by me, may be something like the following:

We will suppose a steamboat at St. Louis, ready to depart for New Orleans. The inspector is notified of the fact, repairs on board, and makes a proper inspection of the boilers, engines and machinery, and finds they bear the relative proportions, with the proper pumping apparatus, free and unobstructed passages, and all in good order. But he finds the boilers are old and somewhat

worn; or perhaps, in the application of the hydrostatic pressure, he finds indications that it will not be safe to run these boilers under a higher pressure than, say fifty-five pounds to the square inch. He then says to the engineer, you may run with this pressure and no more. You may also run, when the water is full, three inches above the flues and no lower. He then repairs to the cabin, and there adjusts the indicators to the prescribed limits, (which can be done in a moment,) locks up the indicators, and retains the keys. Between the two indicators he places his permit, and the boat is allowed to depart. We will now suppose the boat has proceeded on her voyage as far as Memphis, and during this time the engineer has had "dangerous steam" or dangerous water, and none of the passengers are disposed to prosecute him for the penalty in the bond; it will be the duty of the local inspector there to repair immediately on board and unlock the indicators, where he will find a secret register giving the exact number of times that dangerous steam or water has occurred, and exactly to what extent, since the departure from St. Louis; and if he should consider it unsafe to allow the engineer to continue in charge, he substitutes another in his stead.

In order to facilitate the trial of boilers by hydrostatic pressure, I have invented an apparatus which will, with unerring certainty, show the exact pressure to which any boiler may be subjected. This can be applied to any boiler in a moment—is not likely to get out of order, and I consider it as an important instrument in carrying out the details of my plans.

I have also invented a safety-valve which I denominate an indicating safety-valve, which will indicate the exact pressure of steam in the boiler at all times, and which will, with the most reliable certainty, relieve the boiler by blowing off the steam at any given pressure established by the inspector; it is not liable to get out of order, and having no seat to rest upon, it will not be liable to attachment or sticking to it: it will seldom or never become stationary, because it is constantly active; giving the register of pressure within; and is effectually protected from all interference of the engineer or officers of the boat, and will relieve the boiler from undue pressure if it should exceed, by a single pound, the limit prescribed, despite any effort of the engineer; it cannot be done without instant detection.

As it now is, there is not a single passenger in a thousand but who goes upon a boat, as it were, perfectly blindfolded. To him, the whole (as the facilities for information now exist) is in perfect darkness.

I conceive it would be one of the most gratifying conditions of things that could be added to the present mode of steamboat navigation, for the passengers to have the positive means of knowing at all times, by the earliest intelligence, the approach of danger. Indeed, could such an event be brought about, it would be hardly

possible to get up an explosion. That I have in the first place shown the causes tending to produce explosions, in the second place made the only proper suggestion, to prevent them; and, in the third place, that I have devised the most perfect plans to keep the passengers informed, if the second should be neglected, I have no doubt; and if the government should think it advisable to give my instruments a trial, I should not shrink from the most scrutinizing investigation. A. GUTHRIE.

ARTICLE IV.

Isthmus of Tehuantepec.*

The Isthmus of Tehuantepec is that portion of the Mexican territory which lies between the Gulf of Mexico and the Pacific Ocean, where the two seas approach the nearest to each other; and comprises the eastern portion of the States of Vera Cruz and Oaxaca.

From the mouth of the Coatzacoalcos, which discharges itself into the Gulf in 18° 8′ 20″ north latitude, and 94° 32′ 50″ longitude west (from Greenwich), to the harbor of Ventosa on the Pacific, situated in 16° 11′ 45″ north latitude and 95° 15′ 40″ west longitude, the distance in a direct line is 143½ miles. The coast-lines on either side have a general direction nearly east and west.

In considering the Isthmus with reference to its general topographical features, it may properly be said to comprise three main divisions, more or less distinct in their general characteristics; the first, embracing that portion extending from the Gulf to the base of the Cordillera, and which may be called the *Atlantic plains;* the second, comprising the more elevated or *mountainous districts* in the central parts, and the third, including the level country bordering the ocean on the south, and known as the *Pacific plains.*

The first division comprises a belt of country of some forty or fifty miles in breadth, lying contiguous to the Gulf coast, and made up of extensive alluvial basins of exceeding richness and fertility, through which the drainage of the northern slope of the Cordillera discharges itself into the Gulf.

The principal of these hydrographic basins is that of the Coatzacoalcos, which occupies the central portion of this division, and has a general direction of N. N. E. by S. S. W. It is separated from the basin of the Tonola and Tancochapa rivers on the east, and the San Juan on the west, by a moderately elevated plateau

* The following topographical view of the Tehuantepec route is extracted from the Report of the Survey made by the Tehuantepec Railroad Company, under the general superintendence of Major J. G. Barnard of the United States Engineers. We copy from the "American Railroad Journal."—*Editors.*

or table land, furrowed by numerous small streams, and generally covered with dense forests. These table lands, with few exceptions, are not elevated more than two or three hundred feet above the sea level.

Conspicuous to the west of the Coatzacoalcos are the peaks of San Martin and Pelon, mountains of considerable magnitude, and constituting the most striking topographical features of this division of the Isthmus. They occupy an angle in the coast, which at the Barilla turns to the north, making nearly a right angle with the coast line to the east, and gradually curving to the west for a distance of 20 or 30 miles, when it again assumes an east and west direction. The mountains referred to terminate a long range of hills extending to the west, and gradually decreasing in height till they subside to the level of the plain country bordering the San Juan river on the east: the whole being known as the Tuxtla range. With few exceptions, the entire country embraced in the northern division (as seen from the highlands immediately south of the Jaltepec river) presents the appearance of a broad plain, entirely covered with dense forests.

The second or middle division may be said to extend from the Jaltepec river on the north to within 20 or 25 miles of the Pacific coast, comprising a strip of country through the central portions of the Isthmus, of some 40 miles in breadth on the west, and gradually widening out towards the east to 60 or 70 miles. This division presents a great diversity of features. The immense chain of the Cordillera, which, under different denominations, extends almost without interruption, the entire length of the two Americas, traverses the country from east to west; but instead of those lofty volcanic peaks, which constitute so striking a feature of extensive portions of this gigantic chain of mountains, there is a sudden depression of the range in its passage across this Isthmus, the continuity of the chain being nearly broken at a point directly in the line of shortest communication between the two oceans. The Cordillera here approaches very near the Pacific coast, and its southern slope terminating suddenly, extends in nearly a right line for a considerable distance in an east and west direction. But on the north side, the base of the mountain range, commencing at the point of greatest depression, forms an extended curve to the northeast on one side, and to the northwest on the other, having the concave side turned towards the north. The section of country lying to the south of the Jaltepec and Chalchijapa rivers, and circumscribed on the east, south and west by the above mountain range, is made up of elevated table lands, more or less broken and divided by low irregular spurs from the main Cordillera. To the east and west we find a confused mass of mountains, which, though attaining to but a moderate elevation, cover a large extent of country, particularly on the east, where they fill nearly one-half the breadth of the Isthmus. The table lands above mentioned

comprise an area of about 1400 square miles, and are watered by the Jamuapa, Sarabia, Malatengo, Almoloya and Chichihua rivers, all tributaries to the Coatzacoalcos, and streams of small importance, by reason both of their limited length and the comparatively small volume of their waters. The first four take their rise in the mountains to the west, and the last drains a portion of the mountainous districts to the east. These streams present through nearly half their length the character of mere torrents, and their currents are generally rapid throughout their entire course. In their passage through the table lands, they are generally bordered by a greater or lesser breadth of rich alluvial bottoms.

The elevated spurs and ridges referred to, and which traverse the country generally in an east and west direction, offer the principal obstacles to the construction of a railroad across this portion of the Isthmus. The Jaltepec and Jumuapa rivers are separated by a chain of highland, constituting a spur from the Cordillera on the west, and extending easterly to the Coatzacoalcos; branching from this main ridge, are numerous lateral spurs, which decreasing in width and height, gradually subside by the level of the river bottoms. We also find the country bordering the Sarabia river considerably elevated and broken, from its confluence with the Coatzacoalcos to a point about two miles westward of Boca del Monte; and three miles southwest of this latter place is a high range of hills, known as the mountain of Sarabia.

Further to the south are the hills of Xochiapa, which originally seem to have formed a connected chain, joining the mountain range to the east and west, but have been cut through or divided by the Malatengo, Almoloya and Chichihua rivers; thus opening *natural* passages through a range of hills, which otherwise would seem to have offered an almost insuperable obstacle to the construction of a railroad. Between this range and the Summit Pass, the country is made up of elevated rolling plains, which are divided by low ranges of hills into three divisions, known respectively as the plains of Xochiapa, Chivela and Tarifa, which generally present a very smooth surface, but more or less undulating, and nearly destitute of heavy timber, except on the margins of the principal streams. They gradually become more elevated as we approach the Summit Pass, and also present a more uniform level surface. They are bounded on the south by the cerros Prieto, Masahuita and Espinosa, all of which terminate in rugged limestone peaks, at an elevation of from 1500 to 2000 feet above the Pacific; and form the only connecting links between the high mountain chain extending westwardly through the State of Oaxaca, and the Cordillera of Guatimala on the east.

By a narrow opening or gap in these mountains, we descend suddenly from the elevated table lands to the Pacific plains, which form the third or southern division. These plains average about

twenty miles in breadth, from the base of the mountains to the Pacific coast, and descend on the meridians to the lagoons, at an inclination varying from ten to fifteen feet in the mile; thus forming, as it were, an immense inclined plane, with its side next the mountains about two hundred and fifty feet above the Pacific. Under these circumstances they present a remarkably smooth, even surface, with an uniform, gentle slope towards the sea. In some instances there are occasional isolated hills, which rising abruptly, form a prominent feature in the topography of this part of the country. The plains are traversed by eight rivers, which discharge the drainage of the southern slope into the sea. Seven of these rivers empty into the lagoons, which are connected with the sea by a narrow outlet, called the Boca Barra; the eighth, or Tehuantepec river, comes from a northwesterly direction, and passing through the city of the same name, discharges itself directly into the sea at the Bay of Ventosa.

All of these streams, as they issue from the mountains, are remarkably pure and limpid, even in times of flood, thereby indicating the rocky nature of the districts which they drain. In their descent towards the plains they offer almost unlimited sources of water-power, which at many points may be made available for sawing lumber or for other purposes.

The lagoons, which receive most of the drainage of the southern slope, extend a distance of nearly forty miles along the coast, and comprise an area of more than 200 square miles; they are divided by a narrow peninsula of land into two principal divisions, known as the upper and lower lagoons.—Though of considerable extent, they are generally shallow, and no doubt annually becoming more so from the sediment brought down by the numerous rivers which discharge into them.

The bay of Ventosa is formed by an indentation in the coast, and the projection of the Cerro Moro on the west. The Tehuantepec river discharges itself near this point. The bay is partially sheltered from the north winds by low ranges of hills from three to four miles distant. A short distance to the westward are two similar indentations of the coast, known respectively as Salina Cruz and Salina del Marques.

Of the streams watering the northern slope of the Isthmus, the most important by far is the Coatzacoalcos, by reason both of the comparatively large extent of country, for the drainage of which it is the outlet, and also as furnishing the natural channel through which the projected communication between the two oceans may, in part, be effected. The river takes its rise in the unexplored part of the Sierra to the east of Santa Maria Chimalapa. About thirteen miles above this village, the Chimalapilla falls into the Coatzacoalcos on its right bank. This was the highest point explored by the commission; but the Indians ascend it on rafts thirty or forty miles further beyond.

From Chimalapilla, the Coatzacoalcos receives a large number of tributaries, among the most important of which are the Coachapa and Aspinapa on the east, and the Jaltepec and Tierra Nueva on the west. The Aspinapa is a large and important river, and is navigable for some distance for large ships.

From the mouth of the Jaltepec to the mouth of the Coatzacoalcos, the latter has a gentle and pretty uninterrupted current. For a very considerable distance it is navigable for large vessels. We copy the following account of the river, from Mina-titlan to its mouth, a distance of about 20 miles.

"The banks of the river below Mina-titlan are very low and frequently flooded. The mouth of the Coatzacoalcos, the geographical position of which has been given, is 115 miles west from the river Grijalva or Tobasco, and 110 miles from Vera Cruz. Its width is about 1500 feet, and its depth varies in different places. A transversal section of the river, over the bar, shows it to be slightly swelled in the middle and hollowed out towards the two banks of the river; the hollow on the right forming the eastern, and the other the western pass. The greatest depth of the latter is close to the bank on which the fort is built. This pass is a straight channel, of easy entrance, and always the same, by reason of the nature of the material composing the bar. It has a width of 350 feet and a depth of 13 feet, which, however, is diminished to 12½ in the month of May. The tides are not strong on the Mexican coast; but in case of heavy northerly winds, the waters of the river are backed up, giving a sensible increase of depth on the bar. The eastern channel is about 100 feet in width, and its depth varies from 11 to 12 feet.

As soon as the bar is crossed, and the ascent of the river commences, it widens and deepens, and at 7 miles from the Gulf the lead shows a depth of 40 feet, which is preserved for some distance. The lead depth in the channel below Mina-titlan is 12 feet, and this may be carried nearly to the island of Tacamichapa. The superior advantages offered by this stream as a safe and convenient harbor for ships, early attracted the attention of the Spanish conquerors. Cortes, in his official dispatches to the Emperor Charles V., speaks of the importance of this river, as furnishing the best harbor to be found on the Gulf coast of Mexico. In giving the results of a survey of the river, made by his order, he says: "They found two fathoms and a half of water at its entrance, in the shallowest part, and ascending twelve leagues, the least they found was five or six fathoms."

These soundings were made in the year 1520, and give about the same depth over the bar at the mouth of the river which we now find. This is an important fact, as proving that the material of which the bar is formed does not change its position, and giving promise that any work for deepening the channel at this point will afford permanent results."

ARTICLE V.

Proposed Reconnoissance of the seas around China and Japan.

The fruits of no other branch of industry are so entirely a gain to the national wealth as those derived from fisheries; and this consideration alone should be sufficient to induce our Government to promote the interests and safety of the hardy seamen engaged in this perilous pursuit. We, therefore, regard the proposed reconnoissance of the whaling grounds in the Arctic sea as creditable to our Government, and trust that the measure will be speedily carried into effect.

The following communication from the Secretary of the Navy to the Senate of the United States contains an interesting account of the whaling operations in the regions about Behring's Straits, for the last three years, and is calculated to excite a high degree of admiration of the daring enterprise of American fishermen.

NAVY DEPARTMENT, April 5, 1852.

Sir: I have the honor to acknowledge the receipt of the Senate's resolution, adopted on the 22nd ult., calling upon "the Secretary of the Navy" to "communicate to the Senate his opinion of the expediency of a reconnoissance of the routes of navigation in the northern seas, and in the China and Japan seas, and whether any vessels belonging to the service can be used for that purpose; and also, what would be the expense of such a reconnoissance."

So far as regards the expediency of the reconnoissance referred to in the resolution, I find that the files of this Department contain a carefully prepared discussion of the subject by the Superintendent of the National Observatory of the date of December 31, 1851—confined, however, to the value and importance of the whale fishery in the Aneadir Ochotsk, and Arctic seas, as the whaling grounds in the regions about Behring's Straits are called, from which I beg leave to furnish the following extracts:

"In the summer of 1848, Captain Roys, of the whale ship Superior, penetrated the Arctic ocean, through Behring's straits, and encountered in his adventurous pursuit all the dangers of an unknown and Polar sea. He was successful in his enterprise, filling his ship with oil in a few weeks. Influenced by the report which he brought back as to the abundance of whales, owners in the United States fitted out a large fleet for those grounds, and, in 1849, Captain Roys was followed by one hundred and fifty-four sails of whale ships, each vessel said to be worth on the average, with her outfit, $30,000, and manned by 30 able-bodied seamen each. This fleet took that season 206,850 barrels whale oil, and 2,481,600 pounds of bone.

"In the summer of 1850 there went up a whaling fleet of one hundred and forty-four American vessels, manned as above, and of a like average value. This fleet, in the course of a few weeks, left for their pursuits, in those inhospitable regions, took 243,680 barrels whale oil, and 3,654,000 pounds of bone.

"In the current year (1851) there went up a fleet of about one hundred and forty-five American vessels; but their returns have not been received; partial accounts of wreck and disaster only have reached us. They are startling.

"The lives and property at stake there for the two years for which we have complete returns, may be thus stated:

1849. Number of American seamen, 4,650.

Value of ships and outfit,.....	$4,659,000	
Value of oil taken,.....	2,606,510	
Value of bone,.....	814,112	
		$8,070,622

1850. Number of American seamen, 4,320.

Value of ships and outfits.....	$4,320,000	
Value of oil taken,.....	3,761,201	
Value of bone,.....	1,200,630	
		$9,341,831
Total ships in two years,.....	299	
Total seamen,.....	8,970	
Value of ships and cargoes,.....		$17,412,453

"The losses during the year 1851 have been unprecedented, so far as heard from. No less than seven sails of this fine fleet of 1851, the Honqua, the New Bedford, the Arabella, the America, the Armata, the Mary Mitchell, and the Henry Thompson, have been wrecked there, and left behind as monuments of the dangers which meet these hardy mariners in their adventurous calling. There are reports of other losses and wrecks: these are certain; and though several of them were lost, not on shoals, but otherwise, yet there are enough to tell of imperfect hydrography, and to show the national importance of looking to it; for it may be so, that in case of loss by ice, the knowledge of a sheltered anchorage near, and which a survey would give, would have perverted the exposure to the ice which induced the loss.

"All our commerce with what is called 'the East' is not so valuable as this was for 1849 and 1850.

"We see by the above statistics that in those two years more American seamen were engaged in that small district of ocean than are employed in our whole navy, at any one time; that in these two years these hardy mariners fished up from the bottom of the sea, and by their own energy created and added to the national wealth, the value of more than eight millions of dollars. And we moreover see that, owing to the dangers of the land and the ice, the hidden

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rocks and unknown shoals, one vessel in every twenty that went therein during the summer of 1851 has been left behind a total wreck, and that the lives of their crews, or of not less than one man for every twenty engaged in that business, have been put in jeopardy, mostly for the want of proper charts. No protection that our squadrons can at this moment give to our commerce with any of the States of Christendom can compare with that, which a good chart of that part of the ocean would afford to this nursery of American seamen, and to this branch of national industry.

"I learn that in latitude 64 deg. 15 min. N., long. 178 deg. W., Capt. Middleton, of the barque Tenedoz, of New London, discovered a shoal having only eight feet of water on it, and two acres in extent. That the ship Ajax, of Havre, was lost on a rock S. of the isle of St. Lawrence, ten miles from land. That the entire fleet of whalemen in the Arctic ocean complain much that charts are wrong. That the coast is badly explored, but little known, &c. That several of our vessels have been near being wrecked by unexpectedly making land or rocks under the bows at night. That they have found in the Arctic Circle low sand-spits, extending five or six miles out. That also in Ochetsk sea there are hidden dangers. That the Honqua, in 1851 was totally wrecked on a sunken rock in that sea.

"I am also informed that the Indians are very friendly; that they wanted to trade; that the whalemen frequently went on shore, etc. That Capt. Taylor brought specimens of ores of metals from the Arctic shore; that he obtained information of the natives of the existence of gold among them, as also iron; that when shown implements of various kinds, they gave him to understand, plenty in the mountains. Such also was the case with gold; they knew the metal, and pointed, as such existing among them."

With these facts before the Department, I have no hesitation in expressing an opinion favorable to the measure suggested in the resolution, nor in recommending such a reconnoissance and survey as will establish accurately the positions of the prominent capes, bays, headlands and harbors.

To fix the positions of the rocks and shoals that endanger the navigation there, and to examine the Fox or Aleutian Islands, would be the work of two or three properly appointed vessels only for a short time. When the season is closed for these latitudes, the same vessels could be most beneficially employed in an examination of the seas of China and Japan, and the regions thereabouts, and an accurate knowledge of which is becoming every day of more and more importance.

In reply to the latter clause of the resolution, viz: "whether any vessels belonging to the service can be used for that purpose, and also what would be the expense of such reconnoisance," I respectfully state that this Department has not at its command the vessels cenessary for the contemnlated service, unless by reducing the

numbers of our vessels attached to squadrons on foreign service, and which I by no means recommend.

I am of opinion that the necessary vessels can be built at our navy yards, or purchased for a sum not exceeding $125,000, and that no additional appropriation, beyond that sum, need be made. The wear and tear of the vessels, pay of the officers and crews, stores, provisions, instruments, &c., can be provided for out of current appropriations. The accompanying report from the Chief of the Bureau of Ordnance and hydrography, and papers prepared by Commander Ringgold and Lieutenants Maury and Page, are respectfully submitted as throwing additional light upon the subject.

I have the honor to be, very respectfully, your obedient servant,

WILL. A. GRAHAM.

Hon. W. R. KING, President of the Senate.

ARTICLE VI.

Steamers between Virginia and Antwerp.

We commend the following article extracted from the "Cotton Plants" to the careful consideration of our readers in the valley of the Mississippi. The estimates of the author respecting the losses incurred by reason of the present system of indirect trade between Virginia and foreign countries may be too high, but whether this be the case or not, we are fully persuaded that a state of general and progressive prosperity can never be established and permanently maintained in that great Commonwealth, so long as her present commercial system continues. She may exhaust her means in carrying out a thorough system of internal improvements, open her mines of iron, coal and lead, and even restore her worn-out lands to a state of fertility, but New York, and other eastern cities, will enjoy the profits as long as she permits them to manage her commerce.

We rejoice that the people of Virginia have become awakened to the importance of building up a commerce of their own. With ocean steamers in connection with a system of railroads penetrating the valley of the Mississippi, the ancient borough of Norfolk may yet become one of the great commercial emporiums of the Atlantic coast, and the State regain that eminent position, in respect to wealth and social power, which she enjoyed in her most palmy days.

FACTS AND CONSIDERATIONS WHICH RECOMMEND THE ESTABLISHMENT OF A LINE OF STEAMERS BETWEEN VIRGINIA AND ANTWERP..

To the Legislature of Virginia:—

Agricultural Productions of Virginia as per Census of 1851.

Bushels of Wheat,	14,516,950	At $1 00, value	14,516,950 00
do. Indian Corn,	35,538,582	" 50 "	17,769,291 00
do. Flax-seed,	53,333	" 1 10 "	58,666 30
Pounds of Tobacco,	66,516,492	" 6 "	3,990,989 52
do. Butter,	11,126,785	" 16⅔ "	1,854,465 17
do. Wool,	2,850,909	" 30 "	855,272 70
do. Maple sugar,	1,223,905	" 6 "	73,434 30
do. Cheese,	434,850	" 8 "	34,788 00
Tons of Hay,	370,117	" 16 00 "	5,922,832 00
do. Hemp, dew-rotted,	3,450	" 60 00 "	207,000 00
do. do. water-rotted,	1,149	"100 00 "	114,900 00
Bales of Cotton, 400 lbs. each,	2,767	" 30 00 "	83,010 00
Gallons of Wine,	4,280	" 1 00 "	4,280 00
Live stock,	——	— "	33,607,362 00
Home manufactures,	——	— "	2,156,073 00
Cord wood, Oysters, Fish, Peas, Beans, Potatoes, Garden Vegetables, Fruits and Melons, estimated at not less than			5,000,000 00
Amounting in the aggregate to			$86,249,314 00

The average difference in the market value of these productions between Virginia and New York is, at the lowest estimate, 10 per ct. in favor of the latter. To that extent, therefore, Virginia sustains a loss upon that portion of them which is consumed without her own limits, whether by her sister States or exported abroad. This may be safely estimated as follows viz:

Of Wheat, one-half the quantity raised, value.....	$7,258,475 00
Of Indian Corn, one-fourth	4,442,322 75
Of Tobacco, two-thirds.....	2,660,659 68
Of Cord-wood, Oysters, &c. one-half.....	2,500,000 00
These articles alone amount to	$16,861,457 43
Which, at 10 per c., gives a loss of.....	$1,686,145 74
It is estimated that about four-tenths of the difference in value above mentioned arises from freight and incidental charges. Deduct that proportion, and a depreciation of 6 per ct. remains to be accounted for. This is readily, and it is believed correctly done, by the fact that New York, being the point at which our export and import trade are now made to meet, and where the great mass of our commercial payments are made, is thereby enabled, through her exchanges, to exert a controlling influence over our financial interests, which keeps down prices here, and raises them correspondingly there. Six per ct. estimated upon the value of our remaining productions not embraced above, viz: $69,861,457 43, shows a further loss of..	4,163,371 39
Which added to the foregoing, exhibits an annual loss sustained by our citizens from this cause alone, of.....	$5,849,517 13

These estimates founded upon the late census returns and such other reliable information as could be obtained, are believed to be sufficiently accurate for all practical purposes, and to fall below rather than exceed the actual loss which a more rigid statistical analysis would exhibit.

For want of any certain data by which to ascertain it, we can only approximate the amount of loss sustained upon the domestic consumption of articles brought into this State from elsewhere. It is believed that of such articles we consume an amount in value fully equal to that arising from the sale of our own productions, viz: $16,861,457 43. Upon that amount the controlling influence of New York before mentioned equally operates, and consequently produces the same depreciating effect.

We may therefore properly estimate the loss arising from this cause at	$1,686,145 74
To which may be added for profits to the Northern factors, and incidental charges, at least 12 per c. more	2,022,374 89
Making the whole loss upon domestic consumption	3,709,520 63
Add to this amount of loss upon productions, as above	5,849,517 13
And it exhibits an aggregate annual loss of	$9,559,037 76

If the foregoing estimates are correct, they shew clearly why it is that the Virginia merchants cannot, except to a very limited extent, import directly from abroad. The merchant of the North enjoys an advantage over ours of at least 12 per cent. additional profit (6 per cent. on the *export*, and the same upon the *import* trade)—a per centage more than twice as large as that usually charged by the import dealer upon the cost of his goods. This gives to him an absolute control over that entire branch of trade.

The great benefits resulting to the Northern merchants from our present commercial vassalage is fully appreciated by them, and hence their constant and vigilant efforts to retain it. No sooner had Virginia begun to move in this matter by the call of a convention at Old Point for the purpose of considering the best means of promoting our own direct foreign commerce, than did those merchants commence the construction of five first class steamers to ply between their ports and ours. This could only have been done to prevent the achievement of our commercial independence, and secure to themselves the continued enjoyment of their present monopoly.

But this is not all. Within the last two weeks citizens of New York, no doubt stimulated by the apprehension of the passage of the bill for establishing a line of steamers between the waters of Virginia and Antwerp reported to the Senate by the select committee, and its ultimate effect in opening and promoting our direct trade, have applied to Congress for aid in the construction of a line of steamers between that city and some port in Belgium. Not content with the monopoly of nearly all the existing lines of our foreign commerce, that *grasping city* seeks with eager haste to pounce upon and appropriate to her own exclusive benefit, or to break down by opposition, every new line sought out and suggested by the enterprise of others.

For want of the necessary statistics, nothing is said about our loss upon the value of the mineral productions of Virginia, which, it is believed, amounts to several millions more.

Will Virginia continue to remain passive, and rest satisfied with the present ruinous course of her trade, without an effort to change

and improve it? Great as are her resources, can she sustain so heavy a drain as from ten or twelve millions of dollars depreciation in the value of her productions every year?—a sum more than sufficient in three years to pay off her whole debt, and perfect all the great lines of internal improvement necessary to develop her own resources and invite the commerce of other States through her borders.

The bill above mentioned proposes to stop that drain without either charge or risk to the commonwealth or her citizens. Will she not avail herself of the opportunity thus afforded to accomplish an object so imperiously demanded by the best interests of her citizens? Before another so favorable can ever be presented for her acceptance, New York will have stepped in; preoccupied the line and secured to herself forever all its benefits.

At the present time nearly all of the mails of continental Europe pass through England and on to New York. The direction of trade ever follows the line of postal communication, and for that reason mainly is it that the trade between this country and Europe now centres at New York. Let a direct communication by steamers be established between Norfolk and Antwerp, and we shall at once secure the whole of that portion of the continental mails which come through Belgium, embracing a population of more than one hundred millions, and sweeping over a territory containing some of the finest agricultural and manufacturing districts in Europe. And besides, in a short time we shall obtain a good share of the residue, for the following reasons: 1st. The inward voyage from Liverpool to Norfolk is from eighteen to thirty hours shorter than it is to New York. One day will be thus saved. 2d. Another day will be saved in escaping the detention incident to the transit through England. The saving of two days in the transmission of intelligence, at an era when time enters so largely into the computation of all business operations, would of itself be controlling. But when we add to this, 3dly, the further saving of the onerous charges now imposed by England upon the transit postage through that kingdom, it can hardly be doubted that the Virginia and Antwerp line will in a few years after its establishment transport the largest portion of the mails between Europe and this country. When this is done trade will necessarily follow, and the great seaport of Virginia, being the centre of commercial intelligence, must become also the centre of commerce itself. No longer dependent upon New York, Virginia will then be the recipient of the benefits of exchange and other commercial profits, instead of paying them to others as she now does to the amount of nearly twelve millions of dollars per annum.

ARTICLE VII.

Seventh Census of the United States.

Desiring to publish nothing relating to the late census that was not official, we have, except in a few instances, declined publishing newspaper statements, and hence, in respect to this subject, we have not kept pace with our contemporaries.

We take the following extracts from the "Report of the Superintendent of Census," as published in the Congressional Globe-Extra.—*Editors.*

REPORT OF THE SUPERINTENDENT OF CENSUS.

Census Office, Washington,
December 1, 1851.

SIR:—I have the honor to report that full and complete returns of the Seventh Census have been received from all the States of the Union on this side of the Rocky Mountains, and from the Territories of New Mexico and Oregon. A portion of the California returns were destroyed by the conflagration at San Francisco—an accident which rendered it necessary for the census agent to prepare new copies from the originals, which are expected here daily. The other returns have been received.

The returns from Utah are expected by the first mail from that Territory, advices having been received of their completion. Three sets of schedules were transmitted by different conveyances, of which only one set reached the agent, which accounts for the delay. The census for that Territory had been taken on manuscript schedules, and, at the latest dates, the agent was engaged in transferring the same to the printed blanks.

On the 30th September there were employed in this office ninety-one clerks, two messengers, two watchmen, and two laborers. In the month of November it was found necessary, in order to prepare certain information in time for the meeting of Congress, to make a large temporary addition to the clerical force of the office, and the number was increased to one hundred and forty-eight, who have performed extra duty.

The frequent demands made by State officers and private individuals for statistical information, has much increased our labors. All such calls have been promptly responded to, when compliance therewith would not interfere too much with the progress of business.

The schedules used in taking the Seventh Census of the United States were arranged on principles different from any heretofore used for that purpose. The plan adopted for their construction, while adding immensely to the labor of the office, presents, on the face of the schedule, much more information in the same space,

and a better combination of facts relating to persons and things, than has heretofore been attained, while it is perfectly simple, without complication, but little liable to error, furnishing easy means of detecting and correcting most of the errors which occur. These blanks were prepared under the direction of the Census Board, and were furnished in timely season. They proved to be well adapted to the purpose for which they were designed. Among the great number transmitted through the mails, from every portion of the territory, not one schedule was received at the office in a mutilated condition, or in any way injured.

The expenses of the Census Office have been as follows, viz:

For printing and stationery, including the amount reported at the first and second sessions of the last Congress, and by the Census Board	$33,153 71
For amount paid United States marshals.....	34,001 25
For amount paid to assistant marshals.....	891,245 18
For amount paid for clerk hire and contingent expenses of the office	105,929 66
The aggregate amount appropriated for taking the Seventh Census was.....	1,267,500 00
The balance on hand this first day of Decemb., 1851	203,170 00
The balance due to marshals and assistant marshals of the United States.....	130,201 00
To pay our contingent expenses, including clerk hire, office rent, fuel, stationery, etc., to the 30th day of June, 1853, there will be required an appropriation of one hundred and fifty thousand dollars...	150,000 00

The cost of printing the compilation of the Seventh Census forms no portion of this estimate—that must be determined by the plan adopted by Congress for the execution of the work.

* * * * * * *

The seventh enumeration of the inhabitants of the United States exhibits results, which every citizen of the country may contemplate with gratification and pride. Since the census of 1840, there have been added to the territory of the republic, by annexation, conquest, and purchase, 824,969 square miles; and our title to a region covering 341,463 square miles, which before properly belonged to us, but was claimed and partially occupied by a foreign Power, has been established by negotiation, and it has been brought within our acknowledged boundaries. By such means the area of the United States has been extended, during the past ten years, from 2,055,163 to 3,221,595 square miles, without including the great lakes which lie upon our northern border, or the bays which indent our Atlantic and Pacific shores; all which has come within the scope of the Seventh Census.

In the endeavor to ascertain the progress of our population since 1840, it will be proper to deduct from the aggregate number of inhabitants shown by the present census, the population of Texas

in 1840, and the number embraced within the limits of California and the new Territories, at the time of their acquisition. From the best information which has come to hand, it is believed that Texas contained, in 1840, 75,000 inhabitants; and that when California, New Mexico, and Oregon, came into our possession, in 1846, they had a population of 97,000. It thus appears that we have received, by accessions of territory, since 1840, an accession of 172,000 to the number of our people.

The increase which has taken place in those extended regions, since they came under the authority of our Government, should obviously be reckoned as a part of the development and progress of our population; nor is it necessary to complicate the comparison by taking into account the probable natural increase of this acquired population, because we have not the means of determining the rate of its advancement, nor the law which governed its progress, while yet beyond the influence of our political system. The year 1840, rather than the date of the annexation of Texas, has been taken for estimating her population, in connection with that of the Union, because it may safely be assumed that, whatever the increase during the five intervening years may have been, it was mainly, if not altogether, derived from the United States.

Owing to delays and difficulties mentioned in completing the work, which no action on the part of this office could obviate, some of the returns from California have not yet been received. Assuming the population of California to be 165,000, (which we do partly by estimate,) and omitting that of Utah,* estimated at 12,000, the total number of inhabitants in the United States was, on the 1st of June, 1850, 23,246,301. The absolute increase from the 1st of June, 1840, has been 6,176,848, and the actual increase per cent. is 36.18. But it has been shown that the probable amount of population acquired by additions of territory should be deducted in making a comparison between the results of the present and the last census. These reductions diminish the total population of the country, as a basis of comparison, to 23,074,301, and the increase to 6,004,848. The relative increase, after this allowance, is found to be 35.17 per cent. The aggregate number of whites in 1850 was 19,619,366, exhibiting a gain upon the number of the same class in 1840 of 5,423,371, and a relative increase of 38.20 per cent. But excluding the 153,000 free population supposed to have been acquired by the addition of territory since 1840, the gain is 5,270,371, and the increase per cent. is 37.14.

The number of slaves, by the present census, is 3,198,298, which shows an increase of 711,085, equal to 28.58 per cent. If we deduct 19,000 for the probable slave population of Texas in

* Since ascertained to be 11,381.

1840, the result of the comparison will be slightly different. The absolute increase will be 692,085, and the rate per cent. 27.83.

The number of free colored in 1850, was 428,637; in 1840, 386,245. The increase of this class has been 42,392, or 10.95 per cent.

From 1830 to 1840, the increase of the whole population was at the rate of 32.67 per cent. At the same rate of advancement the absolute gain for the ten years last past would have been 5,578,333, or 426,515 less than it has been, without including the increase consequent upon additions of territory.

The aggregate increase of population, from all sources, shows a relative advance greater than that of any other decennial term, except that from the second to the third census, during which time the country received an accession of inhabitants, by the purchase of Louisiana, considerably greater than 1 per cent. of the whole number. Rejecting from the census of 1810 1.45 per cent., for the population of Louisiana, and from the census of 1850, 1 per cent. for that of Texas, California, &c., the result is in favor of the last ten years by about one fourteenth of one per cent.; the gain from 1800 to 1810 being 35.05 per cent.; and from 1840 to 1850, 35.12 per cent. But, without going behind the sum of the returns, it appears that the increase from the second to the third census was thirty-two hundredths of one per cent. greater than the increase from the sixth to the seventh.

The decennial increase of the most favored portions of Europe is less than 1½ per cent. per annum, while with the United States it is at the rate of 3½ per cent. According to our past progress, viewed in connection with that of European nations, the population of the United States in forty years will exceed that of England, France, Spain, Portugal, Sweden, and Switzerland, combined.

The relative progress of the several races and classes of the population is shown in the following tabular statement:

Increase per cent. of each class of Inhabitants in the United States for sixty years.

Classes.	1790 to 1800	1800 to 1810	1810 to 1820	1820 to 1830	1830 to 1840	1840 to 1850
Whites	35.7	36.2	34.19	33.95	34.7	38.28
Free colored	82.2	72.2	25.25	36.85	20.9	10.9
Slaves	27.9	33.4	29.1	30.61	23.8	28.58
Total colored	32.2	37.6	28.58	31.44	23.4	26.22
Total population	35.01	36.45	33.12	33.48	32.6	36.25

The census had been taken previously to 1820 on the 1st of August; the enumeration began that year on the first of June, two months earlier, so that the interval between the fourth and fifth censuses was two months less than ten years, which time allowed for would bring the total increase up to the rate of 34.36 per cent.

The table given below shows the increase from 1790 to 1850, without reference to intervening periods:

No. of—	1790.	1850.	Absolute increase in sixty years.	Inc. pr. cent in sixty years.
Whites	3,172,464	19,638,019	16,457,555	527.97
Free colored	59,466	428,637	369,171	617.44
Slaves	697,897	3,184,262	2,486,365	350.13
Total free colored and slaves	757,363	3,612,899	2,855,536	377.00
Total population	3,929,827	23,246,301	19,316,444	491.52

Sixty years since, the proportion between the whites and blacks' bond and free, was 4.2 to 1. In 1850, it was 5.26 to 1, and the ratio in favor of the former race is increasing. Had the blacks increased as fast as the whites during these sixty years, their number, on the first June, would have been 4,657,239; so that, in comparison with the whites, they have lost, in this period, 1,035,340.

This disparity is much more than accounted for by European emigration to the United States. Dr. Chickering, in an essay upon emigration, published at Boston in 1848—distinguished for great elaborateness of research—estimates the gain of the white population, from this source, at 3,922,152. No reliable record was kept of the number of emigrants into the United States until 1820, when, by the law of March, 1819, the collectors were required to make quarterly returns of foreign passengers arriving in their districts. For the first ten years, the returns under the law afford materials for only an approximation to a true state of the facts involved in this inquiry.

Dr. Chickering assumes, as a result of his investigations, that of the 6,431,088 inhabitants of the United States in 1820, 1,430,906 were foreigners, arriving subsequent to 1790, or the descendants of such. According to Dr. Seybert, an earlier writer upon statistics, the number of foreign passengers, from 1790 to 1810, was, as nearly as could be ascertained, 120,000; and from the estimates of Dr. Seybert, and other evidence, Hon. George Tucker, author of a valuable work on the census of 1840, supposes the number, from 1810 to 1820, to have been 114,000. These estimates make, for the thirty years preceding 1820, 234,000.

If we reckon the increase of these emigrants at the average rate of the whole body of white population during these three decades, they and their descendants, in 1820, would amount to about 360,000. From 1820 to 1830, there arrived, according to the returns of the custom-houses, 135,986 foreign passengers, and from 1830 to 1840, 579,370, making for the twenty years 715,356. During this period, a large number of emigrants from England, Scotland, and Ireland came into the United States through Canada. Dr. Chickering estimates the number of such from 1820 to 1830, at 67,993; and from 1830 to 1840, at 199,130—for the twenty years together, 267,123. During the same time, a considerable number are supposed to have landed at New York with the purpose of pursuing their route to Canada; but it is probable that the number of these was balanced by the omissions in the official returns.

From 1840 to 1850, the arrivals of foreign passengers, in the ports of the United States, have been as follows:

1840—'41	83,504	1847	234,756
1842	101,107	1848	226,524
1843	75,159	1849	269,610
1844	74,607	1850†	173,011
1845	102,415		
1846*	202,157	Total	1,542,850

Within the last ten years there has probably been comparatively little immigration of foreigners into the United States over the Canada frontier; the disposition to take the route by Quebec having yielded to the increased facilities for direct passenger transportation to the cities of the Union; what there has been may, perhaps, be considered as equaled by the number of foreigners passing into Canada, after landing at New York, many having been drawn thither by the opportunities of employment afforded by the public works of the province. As the heaviest portion of this great influx of immigration took place in the latter half of the decade, it will probably be fair to estimate the natural increase during the term at twelve per cent., being about one third of that of the white population of the country at its commencement.

Taking for granted the substantial correctness of the above estimates, and the accuracy of the returns during the last ten years,

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* This return includes fifteen months, from July 1, 1845, to September 30, 1846.

† The report from the State Department for this year, gives 315,333, as the total number of passengers arriving in the United States; but of these 30,023 were citizens of the Atlantic States proceeding to California by sea, and 5,320 natives of the country returning from visits abroad. A deduction of 106,879 is made from the balance, for that portion of the year from June 1 to September 30.

the following statement will show the accessions to our population from immigration from 1790 to 1850:

Number of foreigners arriving from 1790 to 1810.....	120,000
Natural increase, reckoned in periods of ten years.....	47,560
Number of foreigners arriving from 1810 to 1820	114,000
Increase of the above to 1820	19,000
Increase from 1810 to 1820 of those arriving previous to 1810.....	58,450
Total number of immigrants and descendants of immigrants in 1820.....	359,010
Number of immigrants arriving from 1820 to 1830.....	203,979
Increase of the above.....	35,728
Increase from 1820 to 1830 of immigrants and descendants of immigrants in the country in 1820.....	134,130
Total number of immigrants and descendants of immigrants in the United States in 1830.....	732,847
Number of immigrants arriving from 1830 to 1840.....	778,500
Increase of the above.....	135,150
Increase from 1830 to 1840 of immigrants and descendants of immigrants in the United States in 1830.....	254,445
Total number of immigrants and descendants of immigrants in the United States in 1840.....	1,900,942
Number of immigrants arriving from 1840 to 1850.....	1,542,850
Increase of the above at twelve per cent	185,142
Increase from 1840 to 1850 of immigrants and descendants of immigrants in the United States in 1840	722,000
Total number of immigrants into the United States since 1790, and their descendants in 1850.....	4,350,934

The density of population is a branch of the subject which naturally attracts the attention of the inquirer. The following table has been prepared from the most authentic data accessible to this office.

Table of the Area and the number of Inhabitants to the square mile in each State and Territory in the Union.

State.	Area in square miles.	Population in 1850.	No. of inhabitants to sq. m.
Maine	30,000	583,188	19.44
New Hampshire	9,280	317,964	34.26
Vermont	10,212	313,611	30.07
Massachusetts	7,800	994,499	126.11
Rhode Island	1,306	147,544	108.05
Connecticut	4,674	370,791	79.83
New York	46,000	3,097,394	67.66
New Jersey	8,320	489,555	60.04
Pennsylvania	46,000	2,311,786	50.25
Delaware	2,120	91,535	43.64
Maryland	9,356	583,035	62.31
Virginia	61,352	1,421,661	23.17
North Carolina	45,000	868,903	19.30
South Carolina	24,500	668,507	27.28
Georgia	58,000	905,999	15.68
Alabama	50,722	771,671	15.21
Mississippi	47,156	606,555	12.86
Louisiana	46,431	511,974	11.02
Texas	237,321	212,592	.89
Florida	59,268	87,401	1.47
Kentucky	37,680	982,405	26.07
Tennessee	45,600	1,002,625	21.98
Missouri	67,380	682,043	10.12
Arkansas	52,198	209,639	4.01
Ohio	39,964	1,980,408	49.55
Indiana	33,809	988,416	29.23
Illinois	55,405	851,470	15.37
Michigan	56,243	397,654	7.07
Iowa	50,914	192,214	3.77
Wisconsin	53,924	305,191	5.65
California	188,982	—	—
Minnesota	83,000	6,077	.07
Oregon	341,463	13,293	.03
New Mexico	219,774	61,505	.28
Utah	187,923	11,381	—
Nebraska	136,700	—	—
Indian	187,171	—	—
North West	587,564	—	—
District of Columbia	60	51,687	861.45

From the location, climate, and productions, and the habits and pursuits of their inhabitants, the States of the Union may be properly arranged in the following groups:*

There are points of agreement in the general characteristics of the States combined in the foregoing groups, which warrant the mode of arrangement adopted. Maryland is classed, as heretofore, with the Middle States, because its leading interests appear to connect it rather with the commercial and manufacturing section to which it is here assigned, than with the purely agricultural States. Ohio is placed in the same connection for nearly similar reasons.

There seems to be a marked propriety for setting off the new agricultural States of the Northwest by themselves, as a preliminary to the comparison of their progress with other portions of the Union. The occupations which give employment to the people of the Potomac, distinguish them to some extent from that division to which we have given the appellation of the coast planting States. In the latter, cotton, sugar, and rice are the great staples, the cultivation of which is so absorbing as to stamp its impress on the character of the people. The industry of the central States is more diversified, the surface of the country is more broken, the modes of cultivation are different, and the minuter divisions of labor create more numerous and less accordant interests. So far as Texas is settled, its population closely assimilates with that of the coast planting States; but it would obviously convey no well-founded idea of the density of population in that section to distribute their people over the vast uninhabited region of Texas. For the same reason, and the additional one of the isolation of her position, California is considered distinct from other States.

Taking the thirty-one States together, their area is 1,485,870 square miles, and the average number of their inhabitants is 15.48 to the square mile. The total area of the United States is 3,220,000 square miles, and the average density of population is 7.219 to the square mile.

The areas assigned to those States and Territories in which public lands are situated, are doubtless correct, being taken from the records of the Land Office; but, as to those attributed to the older States, the same means of verifying their accuracy, or the want of it, do not exist. But care has been taken to consult the best local authorities for ascertaining the extent of surface in those States; and as the figures adopted are found to agree with, or differ but slightly from those assumed to be correct at the General Land Office, it is probable they do not vary essentially from the exact truth.

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* We have taken the liberty of placing this table before the explanatory remarks, instead of after them, as it stands in the report.—*Ed.*

The areas of some of the States, as Maryland and Virginia, are stated considerably below the commonly-assumed extent of their territory, which may be accounted for from the supposition that the portions of the surface within their exterior limits covered by large bodies of water, have been subtracted from the aggregate amount. This is known to be the case in regard to Maryland, the superficial extent of which, within the outlines of its boundaries, is 13,959 square miles; and is deemed probable with reference to Virginia, from the fact that many geographers have given its total area as high as 66,000 square miles.

JOURNAL OF INTERNAL IMPROVEMENTS.

We are gratified to learn that the spirited movement of the people of Washington county in favor of a railroad from St. Louis to the Iron Mountain, has received the favorable consideration of the Pacific Railroad Company. We copy the following resolutions passed by the Directors, on the 12th inst.

1. Resolved, That the President of the Pacific Railroad Company be, and is hereby directed to have the proper surveys made as soon as practicable, for a branch road from the main trunk of the Pacific Railroad, through Washington county to the Iron Mountain, in St. Francois county; said surveys to be made from such point in the line of the main trunk as may be thought best to attain the object intended, and to sustain the best interests of the community at large, and those of the stockholders of the company; it being understood, however, that it is not the intention of this company to apply the proceeds of their present stock subscription to the construction of the branch contemplated, but by additional subscriptions raised for that purpose.

2. Resolved, That the President is hereby authorized and directed to order further necessary surveys of the Pacific Railroad, from the present termination to the western line of the State, by the most direct and practicable route, with the view to a final location; and to accompany said surveys with the necessary agency to procure the right of way throughout the entire line on each survey.

3. Resolved, That the Directors of the Pacific Railroad Company are of opinion, that it will be to the interest of the stockholders to build the proposed branch road to the Iron Mountain, as soon as one-half of the amount of additional stock, necessary to build the same, shall be subscribed; and books shall be opened to obtain subscription, in the counties of Washington, St. Francois,

Madison and St. Louis, under the direction of such commissioners as the President of the Company shall select.

The President appointed the following Commissioners to open books, to receive subscriptions made under the third resolution:

Thomas C. Johnson, Ferd. Kennett, A. Desloge, at Potosi, Washington county.

Corbin A. Alexander, John Cobb, V. C. Peers, at Farmington, in St. Francois county.

This is a liberal movement on the part of the Directory, and highly creditable to the enterprising spirit of our citizens. From our acquaintance with the various interests that may be brought to bear upon this work, we feel assured of its successful accomplishment. This is the first step in the direction of New Orleans, and will pass over the most difficult part of the route.

Only three months ago, when our project for a railroad to New Orleans first appeared before the public, it was regarded as visionary, and even absurd by many of our intelligent citizens. And a respectable paper of this city, after making a palpable misrepresentation of our views, pronounced this scheme as "simply ridiculous."

Give us a road to the Iron Mountain, and we think few men will then doubt of its being continued south until it connects with the improvements of Louisiana.

The Railroad projects now before the people of Missouri, and in part commenced, present the outlines of a system more extensive than even the hydrographical system of this great valley, and if carried out, will be the means of making St. Louis the first city on the American continent.

A Railroad from St. Louis to New Orleans, to the Pacific, and to the valley of the Red river of the North constitute the great outlines of our system. Charters have been granted for all these works extending to the limits of our own State, and that far it is in our power to carry this system into effect. Let us do our part and others will take up the work where we stop, and this generation will not pass away before the entire plan will be accomplished.

We copy the proceedings of the meeting at Potosi, in Washington county, to show the spirit felt in that quarter in favor of what we denominate the St. Louis and New Orleans road. We copy the entire details for the purpose of preserving the names of all those who have and are taking an active part in this great enterprise.

RAILROAD FROM ST. LOUIS TO THE IRON MOUNTAIN.

RAILROAD MEETING IN WASHINGTON COUNTY.—BRANCH TO THE IRON MOUNTAIN.

Pursuant to previous notice, a very large meeting of the citizens of Washington county was held at Potosi on the 26th ult., being the first day of the Circuit Court.

On motion, Dr. James H. Relfe was called to the Chair, and L. W. Burris appointed Secretary.

The committee appointed at a previous meeting, on the 10th of March last, made a report of their proceedings, and recommended such matters as they thought advisable.

Addresses on the subject of railroads, and particularly of the Branch Railroad to the Iron Mountain—its importance and benefits, furnishing statistics, &c., were made by Thomas C. Johnson, James S. Evans, Wm. Brady, and Wm. Smith. On the question of adopting the report, the same was passed unanimously.

The following resolutions were next offered and passed unanimously:

Resolved, That this meeting view with pleasure and interest the project of a Branch Railroad from some suitable point on the main trunk of the Pacific railroad, through this county to the Iron Mountain.

Resolved, That in the opinion of this meeting, a central route through the county seat would be of far more advantage to the county and to the company than a route running on either edge of the county.

Resolved, that in the proposed road, Washington County, as a county, should own at least one-half of the stock taken in the county, and this meeting approves of the subscription of $50,000 by the County Court in behalf of Washington county, provided the people will sanction it at the polls; and we hereby pledge ourselves to vote for said subscription ourselves, and to endeavor by all proper means to induce others to do so.

Resolved, That we have unabated confidence in the intelligence and public spirit of our fellow-citizens of this county, and that they will do all they can to secure the construction of the branch railroad.

Resolved, That two persons be appointed as commissioners from each township, to take up subscriptions to the Branch Railroad—that said commissioners visit, as far as they can, those persons who would likely subscribe, and that they, on the second Monday of June, 1852, meet together in Potosi—and that said subscription be reported to a committee of five, to be appointed by the Chair, for the purpose of being communicated to the Pacific Railroad Company.

The Chair appointed the following persons to constitute the committee of five, under the fifth resolution, viz: Thos. C. Johnson, James S. Evans, John Deane, Peter E. Blow, and Fermin Desloge.

The following persons were appointed as commissioners, to take up subscriptions in the several townships of the county:

For Benton township—Wm. A. Matthews and F. Desloge.
For Union township—Samuel C. White and Ferd. Kennett.
For Richwoods township—Peter E. Blow and James Hunt.
For Liberty township—George Cresswell and John Clancy.
For Johnson township—Milton B. Hill and Jonas M. Anthony.
For Harmony township—G. C. Wingo and F. Manning.
For Bellview township—E. S. Ruggles and Moses Thomas.
For Concord township—B. W. Yeargin and Robert Highley.

On motion, it was unanimously requested that the following named persons canvass the county and address the people, so as to secure a large vote in favor of giving to our County Court authority to subscribe $50,000 to the Branch Road from the Pacific Railroad to the Iron mountain, viz:

The candidates for the Legislature—Judge John H. Stone, Col. F. Kennet, Wm. Smith, Esq., David E. Perryman, Esq., James S. Evans, Mason Frissell, Esq., Peter E. Blow and Thomas C. Johnson, Esq.

JAMES H. RELFE, Chairman.

L. W. BURRIS, Secretary.

The Committee on Internal Improvements, appointed at the Railroad and Plankroad meeting, held at Potosi, on the 10th of March last, beg leave respectfully to report:

That, by the second resolution passed at that meeting, they were required to employ agents to confer with the Pacific Railroad Company, the County Court of Jefferson county, the County Court of St. Louis county, and the County Court of Franklin county, to ascertain what encouragement in the way of subscriptions they will give to the construction of a plankroad, in the direction of St. Louis, to connect either with the Pacific Railroad in Franklin county, or through Jefferson county with the plankroad proposed from Carondelet to the Merrimac river, according as the Company or the counties might deem themselves interested in one or the other of the two routes.

Your Committee was also required to collect all the information in their power, in regard to practicability of routes, and all other matters connected with the question of securing a direct connection of this county with the city of St. Louis, and report the same together with any suggestions that might occur to any of us, to a general meeting of the citizens, to be held here this day. Shortly after their appointment, your committee met and organized, by

appointing John Dean, as Chairman, and J. W. Haefner, Secretary. They requested Thomas C. Johnson to confer with the County Court of Jefferson county, and ascertain how much they would subscribe to a Plankroad running through that county. They appointed Col. F. Kennett and Thos. C. Johnson, to confer with the Pacific Railroad and the County Court of St. Louis county, and David E. Perryman to confer with the County Court of Franklin county.

It is proper that your Committee should remark here, that prior to the meeting of the citizens on the 10th of March last, a memorial had been drawn up and signed by many of our citizens, which memorial was addressed to the Pacific Railroad Company, and gave many facts and arguments to induce the Company to run their track into this county, and send a Branch to the Iron Mountain. This memorial was communicated to the Board at the time our agent conferred with them in regard to subscribing to a Plankroad.

Our agent attended the County Court of Jefferson county, and addressed the Court personally upon the subject of his mission, and the Court agreed to subscribe $35,000 in behalf of the county, to a Plankroad, running through Jefferson, provided, the people would sanction it at their next August election.

The subjects both of Railroad and Plankroad, were laid before the Board of Directors of the Pacific Railroad Company, and their action thereon will appear by the following resolution, passed unanimously at a meeting of the Board held on the 24th of March last:

"Resolved, That this Board observe with satisfaction, the interest manifested by the people of Washington county, in their memorial to this Board in behalf of Internal Improvements; and that while this Board doubt the power and expediency to subscribe to the capital stock of a Plankroad, yet they believe that the interests of the Company, as well as of that section of country, would be promoted by the construction of a Branch Railroad to the Iron Mountain, at the earliest day practicable."

No communication has been had with the County Court of St. Louis county, because that Court was not in session at the time our agents were in the city, nor has Mr. Perryman visited the County Court of Franklin, because it was deemed unnecessary after the action of the Pacific Railroad Company in the premises.

Your Committee cannot but congratulate their fellow-citizens at the favorable turn which has been given to the movement, and by general consent, the idea of constructing a plankroad has been dropped for the present; and public attention directed to securing a branch railroad through the county to the Iron Mountain. We have received information from many sources that justify us in saying that if we are energetic and liberal as a county, there are

many chances in our favor of securing the construction of a branch railroad at no distant day. That energy and that liberality will be shown by the amount of our subscription and our action individually in regard to the right of way. Your committee believe that next in importance to the alphabet and printing press, stand those inventions which abridge space and facilitate inter-communication between different parts of a country. And of this latter class none has been so efficient as the invention of the locomotive. Railroads have revolutionized the business of modern times. Our minds cannot conceive of a greater blessing to this county, than the construction of a railroad through its entire length. It would be far better for our interests than to turn through our territory the best navigable stream in the United States. It would give a stimulus to business such as was never known before. It would cause every acre of our public land to be entered up at once, and which would soon yield a splendid revenue to the county. It would increase the value of every entered tract of land within a belt fifteen miles on each side of the road, doubling the value of the more remote and trebling and quadrupling the value of tracts still nearer the road. It would make our lands everywhere in this county desirable—they would no longer go begging, and there would be no seller who would not speedily find a buyer at a fair price. New avocations would be started, which would be of immense advantage to our laboring men, and your committee think that they do not exaggerate, when they say that the great increase of business in every existing occupation, and the opening of so many new ones, will make dollars as plentiful then as dimes are now.

To secure so desirable a boon, your committee think that the county and its citizens ought to do for this improvement all they ever expect to do for any. It is worthiest of our noblest energies. It would prove the lever of our fortunes and those of our children and children's children.

Let no contracted views characterize our action in this matter. We want the road—we must have it—and we want all its benefits. Our County Court penetrated with the importance of this project, at their last session, unanimously agreed to subscribe in behalf of Washington county $50,000 to a branch railroad through the lead region to the Iron Mountain, provided, the people would sanction it at the next August election. And thus it is that this important subscription is submitted to the intelligence of our people. If that subscription is defeated, our prospect for a railroad is defeated. If that subscription is sanctioned by our citizens, and an equal or greater amount be raised by private subscription, we have every reason to believe that the road will be built.

Your committee have said that our county must not only have the road but its benefits also. The greatest of its benefits is the increased value given to lands on each side of the road, and these

benefits extend to at least fifteen miles on each side, and sometimes to a greater distance. It is manifest that if the route was laid out on one side of the county, a large portion of our own county would derive no benefit from it at all, and the benefit would be shared perhaps by a county whose citizens never subscribed a dollar. A central route would give to our county every possible advantage to be derived from the road. The lands whose value would be increased by the road would be those of our own citizens, and thus those who pay the tax to meet the interest on our county subscription, get the benefit which that subscription will in part confer. There is but one spot in any county which every citizen at some time or other may be compelled to attend, and that spot is the county seat. It is of importance, therefore, that the county seat be easy of access. A branch from the Pacific Railroad must enter our county on the north, and it so happens that the county seat of this county is in exactly a straight line to the Iron Mountain, and a route through it entirely practicable. We thus secure centrality by making the county seat a point. We stop any contention between the eastern and western portion of the county, as to which shall have the road—we can subscribe understandingly and make our calculations accordingly. Besides, the roads radiate from the county seat to every part of the county; there is situate all the county property, and every man who buys a piece of land, has to come there to record his deed. When the road is completed, our citizens living in the northern and southern portions of the county can travel to Court on the railroad—leaving home by the morning train, and returning the same day by the evening train. To the most remote parts of the county they travel in an hour—they are only out a few dimes for railroad fare, and they save the cost of keeping their horses, which of course they leave at home to plough. For these reasons, in the subscription paper which will be read to you, it is provided that the branch road shall pass through the county seat. Again, it was thought necessary that there should be a limit as to time within which the Pacific Company should commence the construction of the branch. As that company, after completing the part of the road already under contract, which perhaps they will not finish until the end of the present year, may have to build about thirty miles more before they can get to a suitable point to branch, it was thought that the company ought to have two years from the 2d of August, 1852, to commence the road—that is, two years from the next August election, when our county subscription will first be valid. We will thus make a conditional subscription to the capital stock of the Pacific railroad, which will not be valid, unless the company within the time limited commence the construction of the proposed road. Having, fellow-citizens, submitted to you our acts and suggestions, it remains for you and for us to put your and our liberality to the test. We should aid this enterprise according to our ability.—And as upon

the eve of a great battle which was to decide the fortunes of two nations, the gallant tars were told that England that day expected every man to do his duty, so we urge and remind you in this important crisis of our history, that Washington county in her sovereign capacity, this day requires every one of her citizens to do his duty.

JOHN DEANE, PETER E. BLOW,
F. DESLOGE, JOHN EVANS,
G. B. COLE, J. W. HAFFNER,
W. A. MATTHEWS, JOHN CASEY,
THOS. C. JOHNSON.

Pacific Railroad.

SECOND ANNUAL REPORT OF THE PACIFIC RAILROAD COMPANY.—SUBMITTED BY THE PRESIDENT IN BEHALF OF THE DIRECTORS TO A MEETING OF THE STOCKHOLDERS, HELD IN ST. LOUIS, MARCH 19TH, 1852.

In obedience to the fifteenth section of the original act of incorporation, the directors of the Pacific railroad present to the stockholders an exhibit of the condition and affairs of the company, for the year ending the last Monday of March, instant.

1. The amount of capital stock subscribed, to this date, is $1,560,400. Of this amount, however, only about $1,300,400 is immediately available for assessment, and $50,200 is the estimated amount of contractor's stock. The loan of two millions of State bonds is derived, according to law, by virtue of the above amount of subscription, which we shall receive as fast as the capital stock is collected and expended.

Twenty-five per cent. has been called in, of which the amount paid up, exclusive of the ten per cent. reserved from the contractor's estimates, is $300,670, including one hundred and seventy-nine shares paid in full, leaving unpaid of the calls on the available subscriptions, $25,880. The amount unpaid of the whole capital subscribed, including contractors' stock, is $1,259,780.

3. The total amount expended to the 10th of March, for engineering, including preliminary surveys of whole line, land damages, fencing, real estate, graduation and masonry, and contingent expenses, is $252,074 14.

4. The indebtedness of the company, for which their notes are outstanding, amounts to $30,880 34, which has been wholly incurred in the purchase of real estate, and the settlement of land damages.—The liabilities of the company further extend to the

expenses to be incurred under contracts made, covering the cost of the entire division in construction.

5. The objects and business contemplated seemed to require convenient and more expensive arrangements at the St. Louis terminus than upon any other part of the road. Owing to this circumstance, and the high price of land in and near the city, the cost of the first division was estimated at a higher rate than any other of equal length. By the revised estimate of the Engineer upon the final location of the division the cost was put down at $1,095,000. This was upon the supposition that the division was forty miles in length. But by an increased cost of some $30,000, the length has been reduced to thirty-seven miles, and the grades also improved. This sum is also somewhat increased in the item of land and damages, which have cost us much more than was anticipated, though the proceeds of the sales of surplus lands, will considerably reduce the final cost. The estimated amount required to complete the division, including the running stock, stationary machinery and buildings is near $900,000.

6. The first division, extending from Fourteenth street, in the city of St. Louis, to Franklin county line, 37 miles, was located by resolution of the Board, June 18, 1851, but the work of graduation was not fairly commenced until the 2d of August. Some sickness among the laborers intervened during the months of August and September, which slightly retarded the progress of the work. Several of the original contractors failed also to perform their contracts, and the work undertaken by them had to be re-let. The inclement weather of the past winter was not favorable for the rapid prosecution of the work. All the sections are now in progress, and the graduation of several of them is nearly completed. The number of hands constantly employed during the past season has been from 800 to 1,000, and as an increase is necessary to complete the work within the contract time, orders have accordingly been given to call in additional forces.—The contractors on the first eight sections, extending about eight miles from the city, are required to complete their work by the 1st to 15th of July.—The contractors on the remaining sections are required to finish by the 1st of September.

A contract was closed last fall with the Ebbervale company, of London, to furnish us 4,400 tons of rails of the T pattern, weighing about sixty pounds to the yard, at thirty-two dollars per ton delivered in New Orleans, duty to be paid in St. Louis by the company. The first fourth of the rails to be delivered before the 1st of May; the second before the 1st of July; and the remainder before the 1st of September. The arrival of the first shipment is daily expected.

Three locomotives, one of eighteen, one of twenty, and one of twenty-four tons, are in process of construction; two at Patterson,

New Jersey, and one at Taunton, Massachusetts. The first of these is expected to arrive here in June. Contracts for ties, cars, machinery, etc., as well as for the construction of the machine shop and engine houses, have also been made, and every step has been taken, that seemed necessary or practicable, to complete the first division within the present calender year.

Looking to the further extension of the road, a contract has been made for five additional locomotives to be constructed in this city within the next two years.

The actual amount of receipts and expenditures [apportioned] to the 10th inst., as appears from the books of the Treasurer and Secretary, is as follows:

DEBIT OR RECEIPTS.

On subscription to stocks	$300,670
From State of Missouri	100,000
Bills payable [for land and damage]	30,880 34
	$431,550 34

CREDIT OR DISBURSEMENTS.

Office expenses and contingencies	$8,306 53
Preliminary surveys	20,116 70
Location do.	7,443 10
Interest and exchange account	189 30
Discount on bonds [sold]	950 00
Land and damages	111,651 07
Superintending construction	12,796 15
Fencing account	4,007 77
Graduation	71,690 21
Masonry and bridges	28,853 21
Superstructure	477 10
Machine shop and engine houses	80 00
Balance in hands of Treasurer	164,989 20
	$431,550 34

In the item land and damages, on the credit side are included the amounts of bills payable embraced in the amount of indebtedness above mentioned.

The balance in the hands of the Treasurer consists entirely of State bonds of the city of St. Louis, and of the county of St. Louis.

We received the first $50,000 in State bonds on the 20th of January last. We are entitled, at present, to $150,000 more of State bonds than we have received; but we can only receive them as fast as the proceeds of the sales of the previous issues are expended on the work. The $100,000 received, have been sold nearly all above par. The company will have to make provision for the payment of the interest on all State bonds sold by them, payable in New York, on the first of July, and first of January, in each year.

More than half of the receipts from subscriptions to the stock, consists of city and county bonds, received at par. Until recently we had not been able to turn these securities into cash as expeditiously as we could have desired; but while we have made no sacrifices, the lapse of time has given us better opportunity to make them known, and a very happy consequence is, that these bonds are now coming into fair request. The Pacific railroad State bonds are now held at above par, and there is good reason to anticipate their advance to a rank fully equal to the securities of any of our sister States of the west or south. Not only is the faith of the State pledged for the redemtpion of these bonds—the faith of a great and wealthy State, comparatively free of debt—but the railroad company endorses them, and the railroad itself is mortgaged as further security. These bonds are, therefore, to be regarded in reality as safe, sound and desirable as any State six per cents in the United States. Nor do we know any sufficient reason why the six per cent bonds of the city and county of St. Louis, at the present rates of interest, should not be fully as valuable as the bonds of our most favored counties. We are prohibited by law from selling the city bonds at less than 95 cents, a limitation which we trust will ultimately prove beneficial to the city credit. A proposition is now pending to take all our securities upon terms which we hope will be satisfactory. We do not, therefore, apprehend difficulty in disposing of these bonds, of all kinds, as their proceeds are needed.

The city of St. Louis is the only stockholder to whom we are allowing interest upon payments made on subscription to stock. The city subscribed on condition of such allowance being made payable in stock, and we receive her bonds at par and allow interest accordingly.

The item of land and damages makes too large a figure to be passed over without further explanation. Circumstances seemed inevitably to precipitate the location of our line of road a little in advance of the dictates of wise policy. The right of way should have been first more thoroughly secured. As a natural consequence, we have encountered many vexations and exorbitant claims for damages.

Our road-bed is laid out generally one hundred feet wide, and occupies in this division 474 acres. Every acre was private property.

The cases which have arisen for settlement number 123, many of which have required examinations and adjustment of title, and about 150 deeds. Of these cases ninety-five are absolutely settled and disposed of, twenty are supposed to be settled as to terms, and eight are unsettled, most of them waiting the action of the Circuit Court. For modes of settlement we have resorted to Commissioners appointed by the Circuit Judge, to referees chosen by the parties, and to negotiation. We have generally found that

negotiation is the most economical for the company, and most satisfactory in its results to all concerned.

In settling several claims we have deemed it best to purchase more land than we required for the road-bed. We have, in this way, acquired over twenty acres of valuable land near the city. We have also acquired about twenty-four acres for depots and other buildings. The actual and estimated cost of these lands and land damages is about $140,000. This cost has been incurred in the following districts:—

Within the first four miles	$119,000
Within the next nine miles	16,500
Within the next five miles	2,500
Within the remaining nineteen miles	1,700

While we have come in contact with a few unworthy spirits, yet it is due to a respectable number of landowners to say, that they have met us in a proper tone of enlightened liberality.

It seems here a proper place to observe that, in its effects upon the price of lands adjacent to the line, the railroad is accomplishing quite as much as was ever predicted or promised. The value has been at least trebled. Lands which recently were held at $1 50, are now held at $10—those which were held at $30, have been sold at $100—those which were but lately bought for $300, have been sold for $1,000. There can hardly be a doubt that the enhanced value of lands through the district of country in which our road is laid, already considerably exceeds the estimated cost of the work as far as located. Another perceptible effect is a renewed spirit of industry and enterprise, and the development of new resources. In the interior, it has attracted new settlers, and occasioned the entry of large quantities of public land. Our fellow-citizens seem to be quite conscious of the superior advantages of railroad power, and manifest, as well at the north of the Missouri, as in the southwest and west, an anxious desire to avail themselves of it. With a view to the further extension of our line, some further surveys will probably be found expedient during the current year. This will be rendered the more important in case of the grant of lands, and the right of way, which we are laboring by every practicable means to obtain in a liberal form from the present Congress. Seeing, however, a disposition manifested to attach conditions calculated very much to impair the value of the grant, the board thought proper to inform the representatives from this State, that it would be inexpedient for the company to accept a grant of which the sales were limited to actual settlers in limited quantities, and by which the State was to become an overpowering stockholder at a double valuation, and the general government to have free use forever of the road. The board believing that the lands would be too dearly purchased at such a price, have expressed a preference for the right of pre-emption to a limited quantity of acres, to be selected by the company. We are en-

couraged to hope, however, that a more liberal bill will yet obtain the assent of the House of Representatives, as it has already of the Senate.

With this grant secured, we apprehend no difficulty in pushing on the work rapidly to the western line of the State. Without it, we do not doubt the work will steadily progress.

In any event, looking at the numerous projects of railroads, north and south, and east of us, calculated, as it were, to change the current of the Mississippi, we feel assured that we shall never regret our efforts, however laborious, to hold St. Louis to her true destiny, as the Central City of the Mississippi Valley.

Submitted in behalf of the board.

THOS. ALLEN, President.

Influence of Railroads on the Value of Land.

The experience of Massachusetts, New York, and Ohio, affords abundant illustrations of the great addition imparted to the value of land and other real property by the construction of railroads. In Massachusetts for example, railroads have more than doubled the value of property, as exhibited in the Auditor's reports, and have reduced the average rate of taxation in the State more than one half. The increase of value is not confined to the immediate vicinity of lines, though of course greatest in those localities; in proof of which we may cite the fact that in 1849 the value of property in those counties of Massachusetts through which no railway passes, exhibited an increase, compared with the value in 1840, of $156,000,000, as the effect of the indirect power of such improvements. In Ohio, where the works are of more recent growth, and where, as yet, no complete system is in operation, corresponding results have been announced from time to time, less general, perhaps, in their operation, but serving sufficiently to foreshadow the advantages soon to be diffused over the State. In Georgia, lands that were in the market in 1846, at from ten to fifty cents per acre, commanded in 1849—when the Chatanooga railroad was in operation—from ten to twenty dollars. The same road, in its extension from Chatanooga to Nashville, Tennessee, passed through the counties of Franklin, Bedford, Rutherford, and Davidson; and the Auditor's books for these counties show an advance in the value of their property of $2,554,639 in one year. So of the Mobile and Ohio railroad: lands that had been in the market without a purchaser for thirty years, have since the laying out of that road advanced to three, and in many instances as high as eight dollars per acre. In South Carolina, again, Col. Gadsden, State Superintendent of railroads, affirms "that the immense increased value imparted to lands is from 500 to 5,000 per cent. (*Railr. Jour.*

COMMERCIAL STATISTICS.

Commerce of the United States.

Statistical view of the commerce of the United States, exhibiting the value of exports to and imports from each foreign country, and the tonnage of American and foreign vessels arriving and departing, during the year ending June 30, 1851.

COUNTRIES.	COMMERCE.				NAVIGATION.			
	VALUE OF EXPORTS.			Value of imports.	AMERICAN TONNAGE.		FOREIGN TONNAGE.	
	Domestic produce.	Foreign produce.	Total.		Entered the United States.	Cleared from the United States.	Entered the United States.	Cleared from the United States.
Russia	$1,465,704	$145,987	$1,611,691	$1,392,782	9,817	9,241	3,266	3,239
Prussia	80,469	5,444	85,913	20,542	262	184	704	1,635
Sweden and Norway	760,800	21,566	782,366	967,237	2,669	1,545	25,225	9,098
Swedish West Indies	61,157	745	61,902	29,001	278	1,319	.....	.....
Denmark	92,257	19,540	111,797	38,887	.....	199	544	2,086
Danish West Indies	902,687	125,602	1,028,289	235,894	10,386	18,233	5,052	4,175
Hanse Towns	5,405,956	641,491	6,047,447	10,008,364	21,734	16,696	90,539	69,724
Holland	1,911,115	284,054	2,195,169	2,052,706	11,417	9,239	18,262	26,014
Dutch East Indies	204,430	43,140	247,570	410,148	3,329	3,016	150	5,651
Dutch West Indies	366,898	138,089	504,987	572,470	15,923	7,687	7,663	806
Dutch Guiana	85,491	5,582	91,073	89,673	4,292	4,927	763	524
Belgium	2,709,393	142,619	2,852,012	2,377,630	16,578	17,654	7,524	3,829
England	105,121,921	8,151,266	113,273,187	90,612,238	619,592	621,566	411,611	274,283
Scotland	3,811,003	261,937	4,072,940	2,999,710	18,219	18,508	46,215	22,987
Ireland	598,688	1,200	599,888	235,938	5,488	3,142	74,021	12,618
Gibraltar	177,904	52,529	230,433	73,604	509	3,900	1,114	1,962
Malta	64,061	12,238	76,299	26,167	300	1,097	694	746
British East Indies	512,906	175,484	688,390	3,336,335	29,907	49,216	2,813	2,964
Cape of Good Hope	161,891	.....	161,891	123,223	1,223	2,501	238	827
Mauritius	16,882	2,976	19,858	.....	.....	.....	.....	.....
British Honduras	213,806	23,362	237,168	174,526	3,055	3,933	2,524	5,125
British Guiana	540,554	3,734	544,288	44,213	2,781	12,001	1,567	4,220
British West Indies	3,943,560	159,949	4,103,509	1,003,871	58,353	88,534	48,315	42,437
Canada	5,835,834	2,093,306	7,929,140	4,956,471	1,013,275	927,013	514,383	516,883
British American Colonies	3,224,553	861,230	4,085,783	1,736,631	62,458	108,235	362,218	592,507

Other British Colonies				182				
France on the Atlantic	24,567,067	2,814,668	27,381,735	29,789,124	135,696	147,093	26,498	12,533
France on the Mediterranean	735,018	135,393	870,411	1,926,429	7,146	16,614	14,656	10,627
French West Indies	289,579	20,702	310,281	22,909	3,983	10,888	2,353	871
Miquelon and French fisheries	3,715		3,715			672		2,072
French Guiana	45,693	651	46,344	28,948	681	1,006		
Bourbon	19,853	2,875	22,728					
French possessions in Africa								194
Spain on the Atlantic	958,713	1,075	959,788	451,797	9,940	14,688	5,547	12,424
Spain on the Mediterranean	4,457,331	137,472	4,594,803	1,710,776	15,101	9,576	19,590	44,014
Teneriffe and other Canaries	13,540	5,639	19,179	27,718	309	753	746	157
Manilla and Philippine Islands	125,544	7,000	132,544	1,254,688	9,933	15,134	2,549	4,805
Cuba	5,23,9276	1,284,847	6,524,123	17,046,931	355,515	361,732	53,162	29,942
Porto Rico and other Spanish West Indies	961,410	57,209	1,018,619	2,480,329	48,336	36,320	7,874	6,013
Portugal	167,342	4,996	172,338	367,548	961	2,470	5,175	5,176
Madeira	94,589	7,176	101,765	102,448	1,068	3,379	187	1,314
Fayal and other Azores	20,240	1 045	21,285	32,852	1,864	1,532	678	723
Cape de Verd Islands	57,476	2,437	59,913	1,850	111	1,505		730
Italy generally	1,736,834	127,406	1,864.240	2,051,897				
Tuscany					5,210	1,513	4,710	485
Sicily	41,743	8,193	49,936	825.924	27,178	2,848	16.473	1,916
Sardinia	310,838	19,401	330,289	2,802	168	6,741	6,204	8,479
Pontifical States							310	
Trieste and other Austrian ports	2,265,573	230,894	2,496,467	730,788	814	10,179	6 281	13,371
Turkey, Levant, &c.	162,204	65,529	227,733	901,236	6,704	4,268	2,109	
Greece					207			
Hayti	1,679,372	167,918	1,817,290	1,889,968	89,940	33,153	7,820	7,586
Mexico	1,014,690	567 (93	1,581,783	1,804,779	29,407	31,019	12 701	20,145
Central America	223.302	39,089	262,391	149,856	8,550	27,563	209	4,4 6
New Grenada	2,507,701	533,121	3,040,822	695,606	166,375	205,390	9,960	12,585
Venezuela	854,779	189,746	1,044,525	2,380,295	17,103	11,761	2,738	2,891
Bolivia					383	189	254	129
Brazil	3,128,956	623,960	3,752,916	11,525,304	63,663	63,629	22,428	7,648
Argentine Republic	659,852	414,916	1,074,768	3,265,382	13,382	11,661	11,005	5,1 5
Cisplatine Republic	32,711	13,078	45,789	19,114	154	1,320	1,992	947
Chili	1,608,877	286,428	1,895,305	2,734,746	30,068	48,140	23,396	41,657

STATISTICAL VIEW OF THE COMMERCE OF THE UNITED STATES.

(*Continued.*)

COTNTRIES.	COMMERCE.				NAVIGATION.			
	VALUE OF EXPORT.		Total.	Value of imports.	AMERICAN TONNAGE.		FOREIGN TONNAGE.	
	Domestic produce.	Foreign produce.			Entered the United States.	Cleared from the United States.	Entered the United States.	Cleared from the United States.
Peru	$249,760	$22,238	$272,098	$94,733	20,102	18,920	5,751	13,519
China	2,155 945	329,342	2,485,287	7,065,144	27,587	46,317	11,327	10,198
West Indies generally	76,936	.....	76,936	25,751	.....	.....	.....	.....
Equador	.....	.....	.....	76,692	586	219	410	568
South America generally	36,196	4),715	76,911	39,829	245	1,768	1,185	.....
Liberia	.....	.....	.....	.....	.....	257	.....	.....
Africa generally	1,245.361	95,283	1,340,644	1,163,176	12,675	12,978	1,035	595
Asia generally	70,586	1,375	71,961	.....	.....	.....	.....	.....
South Seas and Pacific Ocean	601,146	65,832	666,978	2,298	48,501	54,678	1.040	4,013
Sandwich Islands	.....	381	381	16,852	18,992	36,390	3,215	12,008
Australia	.....	.....	.....	.....	6,381	7,832	27,168	25,223
Northwest coast	.....	.....	.....	.....	137	1,960	.....	.....
Greenland	.....	.....	.....	.....	.....	376	.....	.....
Atlantic Ocean	.....	.....	.....	.....	3,077	6,960	.....	.....
Ionian Islands	.....	.....	.....	.....	846	.....	.....	.....
Indian Ocean	.....	.....	.....	.....	3,393	4,540	.....	.....
Uncertain places	.....	.....	.....	.....	102	.....	.....	46
Total	196,689,718	21,698,293	218,388,011	216,224,932	3,054,349	3,200,519	1,939,091	1,929,534

Treasury Department, Register's Office, January 16, 1852.

N. SARGENT, Register.

Statement of the Commerce of each State and Territory, from July 1, 1850, to June 30, 1851.

STATES.	VALUE OF EXPORTS.							VALUE OF IMPORTS.		
	DOMESTIC PRODUCE.			FOREIGN PRODUCE.			Total of American and foreign produce.	In Americ. vessels.	In for'gn vessels.	Total.
	In Americ. vessels.	In foreign vessels.	Total.	In Amer. vessels.	In for'gn vessels.	Total.				
Maine	$1251391	$266096	$1517487	$26959	$6992	$33951	$1551438	$968061	$208529	$1176590
New Hampshire	1287	3662	4949	.....	.....	.....	4949	41682	13346	55028
Vermont	761712	.....	761712	304	.....	304	762016	691268	.....	691268
Massachusetts	7707995	2149542	9857537	1931664	563481	2495145	12352682	23117834	9597493	32715327
Rhode Island	222567	837	223404	14373	.....	14373	237777	295209	15421	310630
Connecticut	419924	13970	433894	184	.....	184	434078	320858	22136	342994
New York	51698245	16406297	68104542	11403676	6198801	17902477	86007019	106568635	34977903	141546538
New Jersey	.....	139	139	.....	.....	.....	139	.....	1111	1111
Pennsylvania	4138261	963708	5101969	228830	25237	254067	5356036	11541212	2627549	14168761
Delaware	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland	37323?5	1684483	5416798	193137	20851	218988	5635786	5662066	988?:9	6650645
District of Columbia	72560	.....	72560	.....	.....	.....	72560	80527	286	80813
Virginia	1550738	1536706	3087444	2624	.....	2624	3090068	227339	325594	552933
North Carolina	236482	190266	426748	4347	.....	4347	431095	125978	80953	206931
South Carolina	8354693	696 880	153?6578	.....	.....	.....	153?6578	16169?5	431397	2081312
Georgia	5224518	3934361	9158879	360	750	1110	9159989	404477	317070	721547
Florida	25?9319	1420591	3939?10	.....	262	262	3940172	38875	56122	94997
Alabama	11641695	6887129	18528824	.....	.....	.....	18528824	43736	369710	413446
Louisiana	38022609	15945404	53968013	388265	57685	445950	54413963	10134465	2393995	12528460
Mississippi	.....	.....	.....	.....	.....	.....	.....	845	.....	845

Statement of the Commerce of each State and Territory, from July 1, 1850, to June 30, 1851.

(CONTINUED.)

STATES.	VALUE OF EXPORTS.							VALUE OF IMPORTS.		
	DOMESTIC PRODUCE.			FOREIGN PRODUCE.			Total of American and foreign	In Americ. vessels.	In foreign vessels.	Total.
	In Americ. vessels.	In foreign vessels.	Total.	In Americ. vessels.	In for'gn vessels.	Total.				
Tennessee								64761		64761
Missouri								622039		622039
Ohio	187158	207967	395125				395125	586460	99871	686381
Kentucky								213576		213576
Michigan	92816	90632	183448	5894	2084	7978	191426	182146		182146
Illinois	98249	16087	114336				114336	3609	1048	4657
Texas		75422	75422				75422	62745	31970	94715
California								2225	11306	13531
Oregon										
Total	137934539	58755179	196689718	14205617	7176143	21381760	218071478	163650548	52574389	216224932

NOTE.—No returns of imports or exports have been received from San Francisco in California for 1851.

Summary statement of the value of the exports of the growth, produce, and manufacture of the United States, during the year commencing on the 1st day of July, 1850, and ending on the 30th of June, 1851.

THE SEA.			
Fisheries—			
Whale and other fish oil....	.....	$882,485	
Spermaceti oil	.....	1,044,967	
Whalebone.....	.....	689,662	
Spermaceti candles	.....	195,916	
Dried fish or cod fisheries ..	.....	367,729	
Pickled fish, or river fisher. (her. shad, salmon, mack.	.....	113,932	
			$3,294,691
THE FOREST.			
Product of wood—			
Staves, shingles, boards,	$2,348,621		
scantlings, hewn timber..	205,190		
Other lumber.....	70,095		
Masts and spars	355,477		
Oak bark and other dye....	2,076,395		
All manufactures of wood..	1,063,842		
Naval stores, tar, pitch, rosin	649,091		
Ashes, pot and pearl.....		6,768,711	
Ginseng.....	.....	100,549	
Skins and furs.....	.....	977,762	
			7,847,022
AGRICULTURAL.			
Product of animals—			
Beef, tallow, hides, cattle..	1,689,958		
Butter and cheese	1,124,652		
Pork, bacon, lard, live hogs	4,368,015		
Horses and mules	198,155		
Sheep	18,875		
		7,399,655	
Vegetable food—			
Wheat	1,025,732		
Flour	10,524,331		
Indian corn.....	1,762,549		
Indian meal.....	622,866		
Rye meal	145,802		
Rye, oats & other grain....	120,670		
Biscuit or ship bread.....	354,286		
Potatoes	79,314		
Apples.....	71,367		
Rice	2,170,927		
		16,877,844	

Summary statement of the value of the exports, &c.
(Continued.)

Indigo		2,803	
Cotton		112,315,317	
Tobacco		9,219,251	
Hemp		29,114	
All other agric. products			
Flaxseed	18,988		
Brown sugar	29,170		
Hops	11,636		
		59,794	
MANUFACTURES.			145,903,778
Wax		122,835	
Refined sugar		219,588	
Chocolate		3,255	
Spirits from grain		36,084	
Spirits from molasses		239,622	
Molasses		16,830	
Vinegar		16,915	
Beer, ale, porter, cider		57,975	
Linseed oil & spir. of turpen.		145,410	
Household furniture		362,830	
Coaches and other carriages		199,421	
Hats		103,768	
Saddlery		30,100	
Tallow candles and soap		609,732	
Snuff and tobacco		1,143,547	
Leather, boots and shoes		458,838	
Cordage		52,054	
Gunpowder		154,257	
Salt		61,424	
Lead		11,774	
Iron—pig, bar, and nails		215,652	
Castings		164,425	
All manufactures of		1,875,621	
Copper and brass		91,871	
Medicinal drugs		351,585	
Cotton piece goods—			
Printed or colored	1006,561		
Uncolored	5571,576		
Twist, yarn and thread	37,260		
Other manufactures of	625,808		
		7,241,205	
Hemp and flax—			
Cloth and thread		1,647	

Summary statement of the value of exports, &c.
(Continued.)

Bags and all manufactures of	6,376	
Wearing apparel	1,211,894	
Earthen and stoneware	23,096	
Combs and buttons	27,334	
Brushes	8,257	
Billiard tables and apparatus	1,798	
Umbrellas, parasols, sunshad.	12,260	
Leather and marocco skins	13,309	
Fire engines and apparatus	9,488	
Printing presses and types	71.401	
Musical instruments	55,700	
Books and maps	153,912	
Paper and stationery	155,664	
Paints and varnish	109,834	
Manufactures of glass	185,436	
Tin	27,823	
Pewter and lead	16,426	
Marble and stone	41,449	
Gold and silver and gold leaf	68,639	
Gold and silver coin	18,069,580	
Artificial flowers and jewelry	121,013	
Trunks	12,207	
Brick and lime	22.045	
		$34,413,206
Coal		163,977
Ice		106,805
Articles not enumerated—		
Manufactured	3,793,341	
Raw produce	1,166,898	
		4,960,239
Total		196,689,718

TREASURY DEPARTMENT, N. SARGENT, Register.
Register's Office, Dec. 16, 1851.

Iron Mountain and Iron Works of Missouri.

We extract the following account of the ores and iron works of the Iron Mountain and Pilot Knob from the very able and useful report of WILLIAM R. SINGLETON, Esq., principal engineer of the Ste. Genevieve, Iron Mountain and Pilot Knob Plankroad. Mr. Singleton's report contains an interesting description of the country between the Iron Mountain and the Mississippi, a portion of which will be found under the proper head. If his estimates of the agricultural capacities of that region be well founded, of which we have no cause to doubt, the Plankroad from Ste. Genevieve to the Iron Mountain, with a branch to Fredericktown, will prove to be a profitable investment, notwithstanding all the iron made in Southwestern Missouri should be transported over a railroad to St. Louis.

We copy from the "Ste Genevieve Plaindealer:"

"A view of the country over which we propose carrying the contemplated Plankroad, will give a correct idea of the amount of business which may be expected to be done upon the Road, and also the probable increase per year after its completion, and incidentally a glance at the benefits to accrue to the country.

The great deposits of iron in the south-western corner of St. Francois county have long attracted the attention of the scientific man and the capitalist. But a few years ago, however, both the Iron Mountain proper and the Pilot Knob were as nature had made them—without a trace of man's industry to indicate that they had become known. In 1836 the Pilot Knob, being on public land, was entered by Van Doren, Pease & Co., who proceeded to form a company for the purpose of speculation and the building up of two large towns, which were to derive their importance from the smelting and manufacture of iron. They also purchased from the original owners the Iron Mountain, around which was laid off a large city; and from this point to the Mississippi was to be a railroad, with a city at its eastern terminus on the west bank of that stream. The State, many years since, having embarked in Internal Improvements, ordered a survey from St. Louis to the Iron Mountain, which was accomplished in 1839 under the direction of Major Morell. All these first projects failed, and nothing was done until June 1845, when the present Iron Mountain Company, composed of the following gentlemen—Jas. Harrison and P. Chouteau, of St. Louis, F. Valle, C. C. Ziegler and John Scott, of Ste. Genevieve, and Aug. Belmont, Samuel Ward, Chas. F. Mersch, of New York, and Everist F. Pratt, of Fredericktown, under the direction and management of its enterprising Directors,

succeeded in establishing it upon a firm basis, and brought the works into their present successful operation.

The Pilot Knob works were begun in November 1847, under the management of C. C. Ziegler, Esq.—the Company being Bernard Pratte, L. V. Bogy, of St. Louis, C. C. Ziegler, of Ste. Genevieve, and Everist F. Pratt, of Fredericktown, who have brought into active operation the furnace, forge &c.

These at present are the only works now in operation, but by no means the only deposits of iron ore. Immediately south-west of the Pilot Knob is a mountain named by the citizens Shephard's Mountain, in honor of Prof. Shephard, on which is a large deposit of iron ore; there are also near the Pilot Knob six or seven deposits of iron ore of various qualities. Thus within the compass of thirty square miles, or a district five miles from east to west, and six miles from north to south, are eight large deposits, of qualities superior to any known to the world. The fame of the Iron Mountain is "world-wide," and not much behind in their qualities are the several other mountains. Around these mountains are fertile valleys of rich land in a partial state of cultivation, but mostly covered with dense forests of the finest timber, furnishing an abundance of charcoal and building material suitable for all the purposes required. It has been the policy of the companies engaged in these works to secure as much of this land as possible, that they may not be dependent in future upon others than themselves for fuel. These lands, so soon as the timber shall have been removed, must be brought into cultivation, and will, in time, not only be sufficient to support the population necessary to carry on the works, but will afford an overplus for transportation. * * *

"In 1843 a charter was granted by the Legislature of Missouri to C. C. Ziegler, for himself and others, and after some time, Mr. Ziegler succeeded in forming a company, which went into operation in June, 1845, as I have already mentioned. When it will be noticed that through the exertions of Mr. Ziegler, both the Iron Mountain and Pilot Knob Companies were first started, this portion of the State is much indebted to him for the prosperity evidently dependent on these works.

To the Secretary of the Iron Mountain Company, Mr. Nettleton, (during the absence of the Manager, Mr. John G. Scott,) I am indebted for the description of the works of the Iron Mountain Company, and to Mr. Bailey, the Manager of the Pilot Knob, for the notice of the works of the Madison Iron and Mining Company.

At the Iron Mountain, there are two cold-blast furnaces, supplied by three cylinders worked by one fifty horse power engine, the steam for which is generated in two boilers by the escape gasses from the tunnel-head of both furnaces. The charge of one is about 350 lbs., two boxes of 50 lbs. of limestone, in 13½ bushels of charcoal. From thirty to forty charges in twelve hours, they

average about 34-68 in twenty-four hours. The average yield of the ore is from 50 to 55 per cent. When the furnaces are running quite well they have yielded 58 per cent. The ore in the big mountain in its purest state contains 65 per cent of iron.

In the state in which it is found in the little and big mountain, it would be of but little use to the manufacturers of pig iron; fortunately, however, nature has prepared and located the materials so as to enable man to use it in any state, by mixing it with and surrounding it by a ferruginous clay, giving the whole a composition containing any per centage from 65 downwards. On the top of the big mountain, the ore is arranged in masses varying in size, from a small lump to immense ledges, similar to the out crop of sandstone cliffs. It also lays in the sides of the two hills in ore-banks, from which the ore used is taken. In these banks it is in layers of different thicknesses—in pieces the largest of which are easily handled by one man, and about one-half can be screened through a one-inch screen, and requires once more to be screened to be ready for use; and by regulating the size of screens, the quantity of clay remaining with the smaller pieces, can be governed at will. This clay, as analyzed in 1845, contains 75 per cent. of silicia, 20 per cent. of alumina, with a very little iron. It forms a very fusible cinder, when treated in the furnace, with one-third its weight of quick-lime. The use of limestone partially calcined, has been found to be the most economical. The largest pieces are roasted in piles of logs, after which they are broken to the proper size. The ore was dug, burnt, pounded and delivered at the tunnel-head of the furnace for the year 1851, at ninety cents per ton of metal made; this included every expense except cutting and hauling logs for roasting the ore, which is estimated at ten cents per ton of metal made. The limestone is also delivered by contract, for twenty-five cents per ton of metal made. The charcoal is made mostly on the Company's land, and costs from 3¼ to 3½ cents per bushel. The amount used per ton of iron made, varies in different campaigns, from one hundred and sixty to one hundred and eighty bushels per ton. The furnaces are situated on the side of the little mountain, near its northern base—the stacks about eighty feet apart, built of stone—one of thirty-three, the other thirty-five feet high, thirty inches in diameter at tunnel-head, and eight feet at base.

The furnaces have generally run from three hundred to three hundred and twenty days in a year—averaging about 5½ tons per day to the furnace; the produce of 1851, 3,431 tons; the amount shipped to Ste. Genevieve, 1851, 2,408 tons; cost of hauling, 25 cents per 100 lbs.; cost of ton, 2,268 lbs., $5 67; during 1851, the large sale of pig metal at Ste. Genevieve, $25 per ton; freight from Ste. Genevieve to St. Louis, $1 50 per ton; to Cincinnati, Wheeling and Pittsburg, from $4 to $5 per ton. To all of these

cities more or less is sold, and to the two latter, in large quantities.

Cost manufacturing 1 ton, including all expenses,	$12.70
" of land transportation, (at present)	5.67
" charges and commission	35
Cost per ton delivered at Ste. Genevieve	$18.72
Deduct amount saved in transportation when Plankroad shall be completed	2.72
	$16.00
Cost transportation to St. Louis	1.50
Cost of ton in St. Louis	$17.50

Madison Iron and Mining Company, at Pilot Knob—forge has seven fires for making wrought iron, producing 1000 tons annually, 800 of which in blooms; 200 is made into bars for the manufacture of steel; 100 of these bars are manufactured after the same process of the celebrated Swedish hoop L., from which the best steel is made; one hot-air furnace, making 1,800 tons per annum —can make 2,000 tons. The works are situated pleasantly, in the valley of one of the head branches of the St. Francois River, surrounded by mountains, having the far-famed PILOT KNOB towering above—one of the *eight* wonders of the world.

The cost of manufacturing the pig metal, the same as the Iron Mountain; the cost of transportation from the Iron Mountain to Ste. Genevieve will be as follows:

Tolls	a two horse team 41 miles and return	$1.23
	Load of 6000 at 1 cent per ton and mile	1.22
		$2.45

One trip in three days, the expenses will be thus:

3 days, one wagon and team,	at $1.25	$3.75	
3 " one driver,	at 75	2.25	
			$6.00
Cost of 6000 lbs.			8.45
Cost of ton of 2,268 lbs., at 14 cents			3.20

This amount will be reduced to $3.00 by the addition of 391 lbs. to the load; and from the experience in Plankroads at the East, it would not be perceptible to the horses. A reduction, then, to the iron interest here, of $2.67-100ths per ton, will enable the manufacturers to increase their works, and place them above the chance of competition from the Eastern furnaces."

We copy the following observations of Professor Shephard respecting the quantity and quality of the ore of the Iron Mountain and Pilot Knob, which we find appended to Mr. Singleton's Report:

Remarks of Professor Shephard, of Yale College, and of the Medical College of the State of South Carolina, in relation to the Iron Mountain.

Having visited the Iron Mountain in Missouri in October last, I am happy to add my testimony to that of the numerous observers by whom I have been preceded, respecting these remarkable deposits of iron ore. I am the more strongly disposed to this task, both from the surprise with which I was struck on finding such vast accumulations of mineral wealth lying wholly unproductive in the heart of a country the richest by nature in the world, and from the regret I feel that any unnecessary impediments should delay an enterprise whose execution can scarcely fail of affording an affluent reimbursement to all concerned, and at the same time of greatly promoting the prosperity of the West.

It is not necessary to say anything concerning the topographical features of the region, in addition to what has been already stated by others. My approach to the mountains was from the east by way of Farmington. Before reaching the meridian in which they are situated, I crossed a bed of red granite six inches in breadth; after which, I found myself upon the same magnesian limestone I had left previously to entering the primitive, which limestone is the well known repository of the lead mines of Missouri, as well as those in Illinois and Wisconsin. The extent of this rock, however, in the Iron Mountain region, is limited to a narrow area, in consequence of the unusual development of mountain masses of feldspar, the limestone occupying only the bottoms of the valleys and the more level spaces between the hills. This compact feldspar is of a red color, and is generally much veined and clouded with black from a large dose of iron. Its appearance is jaspery; it breaking, with a conchoidal fracture, and a ringing sound and sharp-edged fragments, which sometimes resemble flint. Occasionally it assumes the aspect of a true porphyry; well-defined crystals of red feldspar occurring disseminated through the compact feldspar basis. The rock thus described is that which bears the enormous beds of which I am to speak; or, rather, the Iron mountains are, in a certain sense, varieties of the formation under consideration. The "Pilot Knob" may be denominated a ferruginous porphyry, or an aggregate of feldspar and specular iron: the latter occurring of a fine (stufgrained) granular structure, and containing imbedded crystals and rounded grains of feldspar, while the iron mountain is a homogeneous deposit of pure, massive,

specular iron, containing only in a few exceedingly rare cases single crystals of feldspar. We have, then, in this extraordinary region, hills, many hundred feet high, composed entirely of a compact cherryed feldspar, variegated with veins of black, by oxide of iron; in the second place, Pilot Knob, a mountain made up in a large portion of specular iron, the feldspar often scarcely exceeding the ore with which it is mixed; and lastly, the Iron mountain, in which the whole mass is so nearly pure iron ore that the observer is forced to search with the closest scrutiny to detect in it even a few solitary crystals of feldspar!

In offering a statement respecting the extent and richness of the ore, I hesitate not to say that it surpasses for quantity and quality, every thing before known in the metallic history of the earth. The Pilot Knob as I have already said, is a peak about six hundred feet in height, and one entire mass of iron porphyry; the granular specular iron being the ore present, not only as forming the basis of the porphyry, but often constituting wide areas of surface in a state of almost absolute purity.

In the iron mountains, however, we find a mass of this ore unmixed with any foreign matter whatever, with the exception only of the rare crystals of feldspar above mentioned. In respect to homogeneity of composition, indeed, it may be doubted if any mass of mineral matter, of its dimensions, equals it among geological formations. All the feldspar, taken together, that fell under my observation during the survey of the mountain, would not exceed a pound in weight; and, with this exception, I repeat it, I could detect nothing save the pure, and hydrous peroxide of iron, whether it was viewed in loose fragments no larger than a pea, or as forming portions of the immense underlying ledge (or bed) that sometimes emerges from the covering of broken ore, and is visible over an area of several square rods.

Desirous of being able to say something concerning the extent of the mountain as the result of my own admeasurements, I took pains to pace the surface in several directions; and I do not hesitate to state that its circumference is at least two miles. Its elevation has, in my opinion, been correctly given as three hundred and fifty feet. I need not add, that the experience of mining operations in other regions, in connexion with rocks of the class here found, fully justifies us in the belief that the bottom of the present mountain masses lies too deep ever to be reached by human exploration.

All intelligent metallurgists must be aware that the specular iron ore is a species of the highest value for the production of iron. Mohs, (the late professor of mineralogy at Freiberg, and now royal professor of the same at Vienna,) who is the authority on subjects of this nature, remarks, in his Natural History of the Mineral Kingdom, that "the specular iron is an ore of the highest importance, and yields a considerable proportion of the iron annually

produced in the different quarters of the globe." It is obvious that the advantages possessed by the ore of this region are very great, arising out of the absence of any foreign materials, which elsewhere render the smelting of iron ores often extremely tedious and difficult, demanding for them the preliminary process of roasting to dissipate volatile ingredients, and the subsequent addition of large doses of flux to effect the withdrawal of other impurities. Here is an ore, in inexhaustible quantities, requiring for ages no blasting, and but trifling labor to prepare it for the furnace, which is so pure from foreign substances that its reduction must be most easy, its yield not less than 70 per cent.

No one who visits the locality can for a moment doubt, situated as it is in a region of singular advantages for charcoal and mining supplies, and at no great remove from the most remarkable channel of in-land water communication known, that it must, at a very early day, become an iron-producing and manufacturing region second to no other on the face of the globe.

Charleston, South Carolina, March 8, 1838.

SOUTHEASTERN MISSOURI.

We extract the following description of the country between Ste. Genevieve and the Iron Mountain from the report of Wm. R. Singleton, Esq., mentioned in the preceding article. Though one of the earliest districts of the State which was settled, but a very small portion of its resources have been developed, and perhaps at this day no part of the West offers more solid inducements to emigrants than Southeastern Missouri.

"Not the least interesting feature in this section, is the great deposit of granite, or the mountain of that material, upheaved by some sudden convulsion of nature. This great curiosity has attracted much attention from the curious—but is only valuable as it may add to the interests of the contemplated Road. From this granite are made all the mill-stones in this section; and a great proportion of the mountain may be quarried for building purposes, and would well bear transportation. Leaving this mineral region as we advance eastward towards the St. Francois River, a distance of fourteen miles from the Pilot Knob and twelve from the Iron Mountain, the country becomes admirably adapted to purposes of agriculture, and while there is much of the land too broken and rocky to be valuable, yet more than two-thirds of it may be rendered available, and one-half is of more than medium quality, and a fourth is in fact superior.

This section, which is the western slope of the valley of the St.

Francois, contains many valuable deposits. On many of its hills are indications of lead ore, which, no doubt, in a few years will lead to important discoveries.

There are several deposits of a very fine quality of burr stone for milling purposes, which must be brought into the market.

This section is also covered by timber of the finest qualities, embracing every description common to Missouri.

Many large tracts now in their primeval grandeur, stand as living witnesses to the want of enterprise in this section of our State, and cry out in deep-toned thunder for roads, roads, roads! adding at every stirring of the breeze their voices to those of the minerals and the crops, for an outlet. But a better day is coming, and not long will these resources remain known only to the hunter and miner. I see in the coming future a glorious destiny for our State. The people begin to feel their backwardness. Hitherto the means of the State have been too feeble for any great work—much more for such expensive ones as railroads. Now, however, a way is pointed out whereby we may benefit ourselves, and that at a comparatively small expense, and truly within our means. Plankroads, from the simplicity of their construction and cheapness of cost, can be undertaken when the objects to be obtained are commensurate with that expenditure; and from their general utility they must enlist all who are along or adjacent to their routes.

Leaving the St. Francois River, and progressing eastwardly immediately on its bank, are the old lead "diggins" on the Delassus league of land, which were worked when this country was under the dominion of Spain; but for many years they have remained unoccupied. Now, however, that the project of building a Plankroad is on foot, the owners of that tract are taking steps to put it in the market—and there is no doubt that ere the completion of the work these mines will be in successful operation.

From the St. Francois to the ridge dividing the waters of that stream from those which run into the Mississippi through the river Aux Vases, comprising a district of ten miles from West to East, and extending from the ridge between the river St. Francois on the South and Big River on the North, (a distance of six miles north of Farmington,) to the mouth of Wolf Creek, (four miles south of that place,) comprising the most northern division of the eastern slope of the St. Francois valley; and containing about one hundred square miles; of which Farmington is the natural centre, and from its happy and delightful situation, must become a place of some manufacturing importance, and a point where goods to supply the farming interest will be sold. In this district are Wolf Creek and branches, Taylor's Creek and branches, Sand Creek, and Back Creek. In all of these creeks are lands of great value for agricultural purposes. But little attention has been given to

this fine agricultural district; yet, upon the opening of an improved road through this section, I feel fully satisfied that but a few years will elapse ere the route must be closed in by farms from the eastern to the western terminus of the valley, a distance of some twenty miles. The general impression has been, and a common one, even among the citizens, that most of the good land is at present occupied; yet, from my notes, I find that about one-fifth only, of the available lands are in cultivation,—thus showing the great room there is for improvements. Again, the character of the roads and the difficulty in reaching a market has superinduced a supineness and an indifference among the cultivators that is lamentable; and I have been met with this argument against the Plankroad, that they could sell all they raised at home. Now, it is evident, that if produce is so much in demand that consumers must go to the producer, it is the very strongest argument in favor of a road; then, the producer can transport his products with the teams he must necessarily feed and otherwise keep idle, thus making a profit on that which must be otherwise a heavy expense. Some farmers argue, that to feed their stock costs them nothing, because they raise themselves what is consumed; yet that same amount would bring a good price in the market.

From the head of the Jonqua, at the eastern edge or terminus of the St. Francois valley, the country becomes very broken, irregular and barren, assuming a different character in soil and timber, and is here termed the Pineries. There is but little agricultural land in this district, although, to some extent, there are points where farms may be opened. In this district are to be found hills of granite, from which fine building stone may be obtained, and which will bear the cost of transportation to the river. This district extends eastwardly to the ridge dividing the river Aux Vases from the Mississippi, and maintains nearly the same character along the line of the Road, which here occupies the main dividing ridge, to the eastern slope of the same, at the head of the Gabouri, in the valley of which stream the Road passes to the river, and through fine farms now occupied by an industrious and thrifty population of German emigrants." * * * * * *

"In Ste. Genevieve county—about one-half of the uplands are susceptible of producing the finest wheat in the State; while the remaining half, too broken and stony for grain, are finely and admirably situated for orchards and vineyards; and where the latter have been tried, no section of the State has produced more and a finer quality of fruit—and the wine made in the vicinity of Ste. Genevieve will compare favorably with any of our domestic wines, either white or red. Hence, when the Plankroad shall have brought into notice the lands along the line of its location, I confidently expect a rapid emigration into this county of those thrifty farmers and good citizens—the German farmers, when it is known that

thousands of acres of such lands are yet subject to entry hid from speculators as yet. The low lands of this county, wherever under cultivation, have proved well adapted to corn and small grain—while the meadow lands are unsurpassed; and the misfortune is, that there is not enough of such lands in a body as to render the haying interest the best in the county. There are, however, many farms where sixty or eighty acres, and one hundred, could be advantageously turned into meadow.

In St. Francois county—the lands are admirably adapted to all the various crops usual in the State. As yet, no one has embarked in the culture of tobacco or hemp; yet both may and will be tried to advantage north of Farmington, on the flat lands and bottoms of Wolf and Taylor's Creeks. Hemp, or tobacco, would pay well, and by proper attention to manuring would prove as profitable as in the northern counties. Should such be the case, a great revenue would accrue to the road from hemp and tobacco. While the great body of tobacco lands are situated north of Farmington, both south, as far as Cook's Settlement, and southwest to the Iron Mountain, are to be found large tracts of land admirably adapted to hemp and tobacco. On the Iron Mountain claim are many very valuable points on this account. The claim contains over seventeen thousand acres, composed of ridges and mountains, with intermediate wide and flat valleys, on all of which the land is well adapted to hemp;—in addition to which there are belonging to the Company large tracts of "entered" land equally as suitable, and whenever the timber shall have been removed for coal, must come gradually into cultivation. The uplands and side hill slopes in this county, wherever cultivated, have proved of suitable qualities for wheat, and well adapted to oats and rye. The best crop, however, and that from which arises the most profit, is hay, and experience has taught that no county in the State is superior; and there is now every indication that the farmers in the vicinity of Farmington will devote much land and attention to their meadows; and if so, a large quantity of baled hay will find its way to the river. In Cook's Settlement the farmers are also convinced of the advantage this crop has over others, and a large quantity may be expected to pass over the Fredericktown Branch.

In Madison county—are some of the finest lands in the State; and while to the traveler who passes over her roads there appears to be much of the county barren, broken and sterile—yet, upon reflection, he must observe how admirably divided off into convenient farm tracts are the valleys which intersect the county in every direction, and where upon some of these lofty peaks from which every hill in the county can be seen, he must not be unobservant of the thousands of valleys of valuable and rich lands which make up the vista.

In the two counties of Madison and St. Francois, immediately

tributary to the Plankroad, are lands in sufficient quantities to support the Road alone. Then the fact must not be lost sight of, that by the experience of eastern roads, where it would seem real estate had reached its highest point years ago, there is a steady increase of ten per cent. per annum. What, then, may be expected in a county where one-third of the lands are yet unentered and can be bought for $1,25 per acre?

On the Fredericktown Branch, within three miles each side, are about seventy-five thousand acres which will be benefitted by, and add to the interests of the road; about fifteen thousand are unproductive, leaving sixty thousand for cultivation—of which twenty thousand are yet subject to entry. When the fact becomes generally known it will stimulate those in search of homes to examine the country, and perhaps locate and become permanent citizens."

Industrial Fair of the South and West.

We would be pleased to present here an extensive view of men and things in New Orleans.

The apathetic condition of the body of the men, and the desperate condition of public affairs make a demand for heroic energy and perseverance on the few noble and leading spirits who have begun to work a material and thorough reformation throughout the South in Agriculture, Manufactures, Mechanic Arts and Internal Improvements.

They are devising systems and projecting measures of public policy arousing the people to promote the interests and redeem the City of New Orleans, that it may no longer continue waning away, but be truly crescent; that the barriers in the way of its progress may be removed, agriculture stimulated, manufactures encouraged, facilities for transportation by steam cars as well as steam vessels established, and that it may maintain, through the instrumentality of art, the right, bestowed on it by nature, to be the mouth piece of the heart of the Mississippi valley.

We hope that on the 20th of June next they will vote to tax themselves, to raise $3,500,000 for Railroad purposes.

This is a bold proposition, but a self-sacrificing heroism is necessary to save the City from a rapid retrogression occasioned by the influence of Railroad enterprises projected from the Northeast.

But although we would be pleased to present here the extensive view above suggested, we have room for a few words only

on the Industrial Fair, and to place in our columns the epitomized speech of the President of the Convention held in New Orleans on the 3d of this month.

This speech is an honor to the heart as well as to the head of the speaker, and shows the object of the Convention and the Fair.

M. M. COHEN Esq., on being chosen President of the Convention, spoke in substance as follows:

Gentlemen—On me devolves the grateful duty of tendering to the delegates from abroad a cordial welcome. With pride and pleasure do I, as the organ of the city delegation, greet you here as approved colleagues in a noble undertaking. We rejoice in an occasion which enables us to *make* the acquaintance of *some* and *renew* that of *others* among you. We will gladly avail ourselves of the benefits which ever arise from an exchange of ideas and a union of energies and intelligence.

Among the many advantages to result from the Fair which we propose to hold, the first and the most precious is that it will create and continue kind feelings among the citizens of different States. Next to this sweet interchange of courtesies and promotion of friendship, I regard as the chief blessing to be conferred by the proposed Fair, the stimulating the skill and enterprise and developing the resources of our country, the spread of commerce and the diffusion of knowledge. Nor among its results would I forget the advancement of agricultural, mechanical and other industrial pursuits.

It will also tend to diversify labor and find new employment for industry, and encourage manufactures. We have the raw material, the provisions, the coal, wood and iron, and should now manufacture coarse cottons, yarns and sails—aye! and build ships too: we would thus save freight, insurance, commissions and interest.

But to pursue this train of thought would lead me too far. I return, therefore, to the immediate objects of our Convention. Among these, you will decide whether or not, it is expedient to hold, at proper intervals, a series of industrial Fairs and Exhibitions in the several States of the South and West. If it should embrace, as far as possible, all the products of human industry—the fruits of the soil and domestic animals—the produce of mines and quarries, the means, methods and products of manufacture, the useful and ornamental arts, and scientific professions, and all improvements, discoveries and inventions—it will be your duty to determine if contributors and exhibitors should be invited without geographical distinctions or limits, and to devise the ways and means for obtaining, (what Kossuth calls) "material aid." It will be yours to arrange and subdivide the objects of Exhibition into suitable classes—to raise a Special Committee for each class, and one General Committee authorized to prescribe regulations for

the Special Committees, and to award medals, premiums etc. You will decide also upon the expediency of appointing an Executive Committee in New Orleans, which can act from the adjournment of this Convention to the opening of the Fair, in promoting its success, and a like Committee for each State represented in this Convention, which Committee will be located in the State, which it represents, and correspond and cooperate with the Executive Committee in New Orleans.

The period is auspicious. It is a time of universal peace, and peace hath her victories, no less than war. It is an age of thought and the triumphs of civilization. The present is the reign, not of the sword and terror, but of the pen and the press, which places in the *general* happiness the renown of the *individual.*

We now admire above all other Caesars, the fame of Augustus, who sat between the poets Horace and Virgil, and boasted that he found Rome of brick but would leave it of marble. Ours is the duty, not of soldiers, but of citizens. To be heroes in the present age we must be benefactors—cheer the people on to excellence—take struggling merit by the hand—awaken dormant genius—lead out latent talent, and find, in the *good of all,* not only the business but the *glory of each.*

TOWNS OF MISSOURI.

We are indebted to the "Missouri Statesman" for the article published in the April number under the above title. Both editors of this Journal were absent from the city while that number was being printed, and by an oversight of our compositor no notice was taken of the source whence the article was derived. We now make our acknowledgment to the enterprising editor of the Statesman, while we assure him and the publishers of papers and periodicals in general that it is our decided policy to credit all matter published by us to the proper source. For while this policy does justice to all, it makes each one responsible for his facts and opinions.

TO OUR PATRONS.

The first portrait of our Gallery will be found in the present number, and we deeply regret, that after having delayed its publication for several days we are compelled to go to press without a biographical sketch for which we have been waiting. We hope one will be received in time for our next issue.—*Editors.*

ADVERTISING DEPARTMENT.

Stationery.

F. SCHUSTER & CO.—Stock of German, English, French, &c. Books, Engravings, Blank Books, Music Paper and Stationery, No. 38 Walnut street, corner of Second street, St. Louis, Mo.
August, 1851.

Trunks.

M. PENDZINSKI, Premium Trunk Maker. Constantly on hand, at wholesale and retail, and made to order at the shortest notice, Hard Leather Trunks, Solid Leather Steel Spring Trunks, Valises, Carpet Bags, Packing Trunks, Ladies' Dress Boxes, &c.

Trunks repaired in the best manner. Call and examine for yourselves before buying elsewhere, as I am determined to sell as low as any house in the trade, at all risks, No. 42 North Second street [Westside,] between Chestnut and Pine streets, May, 1851.

A. B. LATHROP. J. W. MITCHELL.
L. G. JEGFERS.
A. B. LATHROP & Co.

MANUFACTURERS and wholesale and retail dealers in TRUNKS, Valises, Carpet Bags, Umbrellas, Ladies' Satchels, Dress and Bonnet Boxes, &c.

☞Constantly on hand at *Eastern Prices* (for CASH,) the largest assortment of Packing Trunks, Canvas or Leather, suitable for packing Prints, Clothing or Fancy Articles, Boots and Shoes, &c. Also—Manufacturers of all kinds of Packing Boxes for the city trade. Depot and Office No. 60 Third street, at the "Trunk Emporium" opposite Old Theatre, St. Louis, Mo. April, 1851.

Architects.

BEN. SMITH, Surveyor and Engineer. Surveys made with accuracy and despatch in any part of the city or country; also, Maps constructed, and Plans and Estimates made for Rail, Plank and other roads. Orders respectfully solicited. Office: North-west corner Third and Chestnut streets, St. Louis.
May, 1851.

Flowers.

FLORA GARDEN.—This establishment contains a collection of Plants and Flowers not excelled perhaps by any in the United States. Of ROSES alone there are 230 varieties; and the proprietor has devoted ten years to storing his HOT-HOUSES, 420 feet in length, with specimens of rare and beautiful plants, and flowers from almost every part of the globe. The Garden is pleasantly situated on South Seventh street and affords a delightful retreat from the noise and dust of the city. A commodious SALOON has been fitted up and will be supplied with confectionary, ice creams, and other refreshments suitable to the season and the place. Spirituous liquors are excluded from the premises. Boquets of the richest flowers and most tasteful combination furnished throughout every season of the year.
April, 1851. G. GOEBEL.

Mathematical Instruments.

J. BLATTNER, Mathematical and Surgical Instrument maker, Dealer in Guns, Pistols and Sporting Materials, No. 58 North Second street, between Pine and Olive, St. Louis, Mo., manufactures, and has always on hand: Surveyor's Compasses, Levelling Instruments, Theodolite Pocket Compasses, Spy-glasses, Barometers, Thermometers, Drawing Instruments, Spectacles, Ivory and Gunter's Scales and Protractors, Hour and Half Hour Glasses, Microscopes and Magnifying Glasses, Hydrometers of silver and glass, hydrometers for acids and salts, Magic Lanterns, Electrical Machines, &c., also, Surgical and Dental Instruments; Pocket, Dissecting, Cupping and self-injecting cases; Taylor's Shears, all sizes; Syringes, large and small, Scarificators, Lancets; Forceps; Turnkeys; large Scales and Weights for Druggists; Prescription Scales on Stands; Revolvers, Guns, Pistols, Powder Flaks, Game Bags, &c. ☞All the above Instruments repaired at short notice in the best manner.

Hardware.

WILSON & BROTHERS, Wholesale Dealers in Hardware, corner of Main and Olive streets, St. Louis, Mo.

P. WONDERLY, Manufacturer of Copper, Tin and Sheet Iron Work—such as Copper Pipes for Steamboats and Distilleries, Soda Fountains, Copper ettles, Well and Cistern Pumps, and every other article in his line of business. No. 233 Main street, South-east corner of Cherry, St. Louis, Mo. He also manufactures and keeps constantly on hand, Premium Steamboat Cooking Stoves. Tinware always on hand, wholesale and retail.

Hats.

C. BENEDICT, Danbury, Conn. D. PEARCE, St. Louis, Mo.

DAVID PEARCE & CO., Manufacturers and wholesale dealers in Hats, Caps and Straw Goods, No. 110 Main st., St. Louis, Mo.

Saddlery.

HEWITT & STEINACKER, Saddle, Harness and Trunk Manufacturers, wholesale and retail, No. 67 Fourth street, corner of Pine, opposite the Planters House, St. Louis.

Furniture.

WM. M. HARLOW, proprietor of the St. Louis Furniture Store, manufactures and keeps constantly on hand every variety of household furniture, matresses, window blinds, willow ware, &c.

Also, manufactures to order every article in his line, with despatch. Orders from abroad promptly attended to, and goods carefully packed. All goods warranted as recommended.

New Warehouse, No. 88 Second street, between Olive and Locust streets, St. Louis, Mo.

Slate Yard.

JOHN M. CANNON, Slater, No. 15 and 17 South Sixth street, St. Louis, would respectfully inform the public that, having now completed his arrangements, he is prepared to make contracts for any work in his line. He has in his employ practical slaters, and is well prepared to execute in a workmanlike manner, and with dispatch, all orders entrusted to his care. He keeps constantly on hand, and for sale, Welch slate, rich tiles, sheet lead, slate flagging, slate hearths, copper, brass and iron slating nails, Rosendale cement, and all other articles pertaining to his business. He will strip from roofs zinc, sheet iron, tin, or other covering, and substitute therefor slate. Slate removed from one roof, can be used to advantage on another, which is not the case with any other roofing material. His terms are such as cannot but prove satisfactory. Apply as above.

Brushes.

F. DINGS & CO., importers of German, French and English Fancy Goods, and manufacturers of all kinds of brushes, No. 47 Main street, St. Louis, Mo.

College.

JONATHAN JONES' COMMERCIAL COLLEGE, St. Louis, Mo., incorporated by the General Assembly, January 24, 1849. With full authority to "grant diplomas, award degrees, confer honors, and exercise all and singular, the privileges common to Commercial Colleges, authorized by law in other States."—Charter, Sec. 2.

Young Gentlemen wishing to prepare themselves for busine s pursuits, are respectfully invited to call during business hours and examine the mode of imparting instruction, the progress of the pupils, and the superior facilities extended to those desirous of qualifying themselves for the practical duties of the Counting House. Personal references given to above one hundred and eighty (180) Practical Accountants now in charge of Books in this city, all of whom have completed their business education in this institution.

N. B. For CIRCULARS containing information in regard to the terms, the course of instruction and all business connected with the above, call at the "Book-keeping Department," corner of Fourth and Chestnut streets, or address JONATHAN JONES. St. Louis, Mo.

Manufacturers.

THOMAS GREY, Blacksmith and Iron Worker, No. 90 North Second street, between Olive and Locust, St. Louis, Mo., keeps constantly on hand and manufactures to order Ox Chains, Sledges, Wedges, and every description of Mining Tools, also Iron Hobbles and Picket Pins. ☞Blacksmith work for Housebuilders, at the lowest prices. ☜He has always on hand the highly recommended Iron Frame Bedstead, and Camp Stool.

G. A. BAUER,

WOOD-ENGRAVER, No. 19 Chesnut street, up stairs, (between Main & Second str., opposite the City Hall,) St. Louis, Mo. Every description of Wood Cuts, Portraits, Fac-similes, Buildings, Type, Labels, Borders, Notary Seals, &c. &c. I would recommend myself by executing at very reasonable prices, the finest work that can be done in this city.

Proofs of my work can be seen at my office.

Paper Hangings.

JOHN S. WATSON, (late of Wilgus & Watson) No. 64 & 40 Pine street, between Second and Third, next door above the old stand of Wilgus & Watson, house, steamboat, sign and ornamental painter, grainer, glazier, whitener and paper hanger; also, dealer in all the latest styles of French and American paper hangings. He keeps constantly on hand and ready for sale mixed paints of all colors, oils, varnishes, Japan, turpentine, white lead, putty, and a large and superior assortment of French and American window glass, which will be cut to any size to suit customers.

Particular attention paid to estimating on houses or steamboats. November.

WOLF & ENGERT, importers and dealers in Paper Hangings, Colors and Fancy Papers, No. 49 South Second street, between Elm and Myrtle, St. Louis, Mo. Constantly on hand, all kinds of oil and water colors, paper-hangings, chimney screens, tester pieces, window shades, marble, marroquin, Gold and Silver paper, painters' and Dutch gold bronze, lead pencils, paint boxes, paint brushes, drawing paper, &c. April, 1850.

Records.

PERSONS wishing to obtain transcripts of records in New Madrid county, can procure them without delay by addressing the undersigned. And to avoid the inconvenience of remitting small sums, the records will be directed to George Pegrim & Co., St. Louis, who will deliver the same upon the payment of the fees. WM. MOSELEY,

Recorder of New Madrid Co., Mo.

March, 1851.

Foundry.

S. J. SMITH. T. FAIRBRIDGE.
W. D. WOOD. H. B. HAWKINS.

Missouri Foundry.

FAIRBRIDGE, WOOD & CO., manufacturers of Castings, Iron Railings, Iron Window Shutters, Vaults and Doors; Plumbago Concrete Fire Proof Safes; also, Garrison's Portable Saw Mills.

Office and Warehouse No. 118 North Third street. Foundry, corner Clark Avenue and Eighth street. June, 1851.

Saws and Scales.

ST. LOUIS SAW AND SCALE FACTORY.

LEE, GAGE & CO., manufacturers of every description of Saws and Scales. Factory on Broadway, North St. Louis. Office and Ware-room No. 86 Main street, up stairs.

June, 1851.

ROLIN CLARK, PHILANDER BRALEY.
JOHN RENFREW, ALEXANDER CROSIER.

EAGLE FOUNDRY AND ENGINE SHOP, North-west corner of Main and Biddle streets. Manufacturers of all kinds of machinery, boilers and sheet iron work, portable circular saw mills always on hand, all orders executed with fidelity and despatch.

Manufacturers.

WOOLEN MILL, Canton Illinois.

PIPER & EVERETT, Manufacturers of Cloths, Satinetts, Flanels and Blankets.

Nov. 15th, 1851.

Commissions.

H. W. LEFFINGWELL, Notary Public — R. S. ELLIOTT, Com'r of Deeds.

LEFFINGWELL & ELLIOT, Real Estate Dealers, Auctioneers and Conveyancers, No. 123 Chestnut street, St. Louis, Mo. Real Estate sold on commission, at private sale, or auction. Also, deeds of all kinds written, and acknowledgments taken. Maps of the city and additions to be seen at the office, and information given free of charge. Surveying done promptly and correctly.

GENERAL AGENCY at Dubuque, Iowa, for public lands, real estate, military land warrants, payment of taxes, investigation of titles, amicable collection of debts, and all other business within the legitimate sphere of an Agent's duties, by

CHARLES CORKERY,

Notary Public and Commissioner of Deeds and Depositions for all the North-western States, Missouri included. October, 18 1.

Attorneys.

GLOVER & CAMPBELL, late of Palmyra, Mo., Attorneys at Law, St. Louis, Mo.

JOHN LOUGHBOROUGH. Attorney and Counsellor at Law, office No. 56 Pine street, near Third, (adjoining that of the Clerk of the Supreme Court.

F. HEREFORD, Attorney at Law, Independence, Mo. Office over Thomas & Todd's store.

Refer to Messrs. Thomas & Todd, Smart & Hughes, Coleman & Dallam, Independence, Mo.; Hon. Wm. Scott, Hon. Thos. L. Price, George W. Hough, Jefferson City, Mo.; Tutt & Watson, M. Tarver, Esq., H. Cobb, Esq., St. Louis, Mo.

T. N. WAUL, Lawyer, No. 87 Gravier str., New Orleans, La.

Refer to Magee, Ulhorn & Co.; Leseane & Moise; Benoist, Shaw & Co.; A. J. Denistoun; S. J. Nicholson; Hill, McLean & Co.; M. D. Cooper & Co.; Lowe, Pattison & Co.; McRae, Coffman & Co.; Cockran, Bullard & Co.; C. C. Lathrop.

Dry Goods.

CROW, McCREERY & CO., Wholesale dealers in Dry Goods, No. 71 Main street, St. Louis, Mo. Wayman Crow, Phoceon R. McCreery, Wm. H. Barksdale, Wm. A. Hargudine, Charles D. Appleton.

WOODS, CHRISTY & CO., wholesale dealers in Dry Goods, No. 75 Main street, St. Louis, Mo. James Woods, William T. Christy, James C. Christy, Robert K. Woods.

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C. M. & H. M. WARREN, manufacturers of Warren's Improved Fire and Water-Proof Composition Roofs, and Roofing Materials, which are kept constantly on hand and for sale (with directions for use) to those in the country who may desire to adopt this mode of roofing.

Office and Manufactory, east side Second street, between Almond and Poplar, St. Louis, Mo. Office hours from 10 to 11 o'clock, A. M., and 4 to 5 P. M.

Fruit Trees.

FRUIT TREES AND SHRUBBERY, for sale by the undersigned, at their fruit farm and nursery. This establishment is located seven miles South of St. Louis, Mo. There are Omnibus Coaches running daily from the City within one half mile of the establishment. The Nursery and Gardens are open at all times (Sundays excepted) for the reception of visitors. Horticulturists and amateurs are respectfully invited to visit the establishment and examine for themselves. In directing the attention of the public to their nursery, they would remark that one of the firm, (Mr. James Sigerson,) has been engaged in the above business for the last twenty-five years; during that time he has tested many of the varieties now growing. This, with the assurance on their part of an intention to increase the number of their trees, as well as to add to their assortment from year to year, furnishes a strong guarantee to persons wishing to make choice selections of fruit, that they can always be supplied. Their prices for trees will be as reasonable as at any similar establishment East or West, and when desired, trees will be delivered free of charge in the city or on steamboats; packed in good order for their destination.

☞ All letters addressed to John Sigerson, St. Louis, or to James Sigerson, Carondelet, will meet with prompt attention.

JOHN SIGERSON & BROTHERS.

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PAGE & BACON, Banking House No. 139 Main street, St. Louis, next door to the Bank of Missouri.

N. B. Deposits received, Drafts and Notes from all parts of the Union collected and Exchange on the East and South for sale at all times.

Also Branches of Exchange and Banking Houses at San Francisco and Sacramento Cities, California.

LOKER, RENICK & CO., bankers and exchange dealers, No. 132 Main street, west side, third door north of Vine street, St. Louis, Mo. Interest paid to depositors, drafts and notes collected, sight and time bills purchased and sight exchange on the eastern cities and New Orleans for sale at the lowest rates in sums to suit purchasers.

JOHN J. ANDERSON & CO., bankers and exchange dealers on the north-west corner of Main and Olive streets, St. Louis, Mo. Interests paid to depositors, drafts and notes collected, sight and time bills purchased and exchange on the eastern cities and New Orleans for sale at the lowest rates.

L. A. BENOIST & CO., bankers and exchange dealers, No. 83 Main street, east side third door north of Olive street, St. Louis, Mo. Interest paid to depositors, drafts and notes collected, sight and time bills purchased, and sight exchange on the eastern cities and New Orleans for sale, at the lowest rates, in sums to suit purchasers.

Horse Shoeing.

JOHN MULLERY, Premium Horse Shoer in the alley, opposite the Post Office, will as usual pay particular attention to the various diseases affecting the feet of horses, and will guarantee to give general satisfaction in either of the above departments.

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SCHAERFF & BRO., No. 71 Market street, St. Louis, Mo., are prepared to execute anything in the line of lithography; and especially, as they are in possession of the largest sized lithographic presses and stones, they are able to fill orders of the largest dimensions. They take and lithograph portraits and likenesses from daguerrotypes, engrave or lithograph show bill cards, business and visiting cards, diplomas, music, manifests, labels, facsimiles, bank notes, bank bills, bank checks, bill heads, drafts, bills of lading, maps, town plats, &c.

☞ They particularly beg leave to request the special notice of the public to their crayon drawings and colored lithographs, in as much as this is the only establishment in the West, where this improved style of lithographing is practiced

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JOHN ROW. WM. CLAFLIN.
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HOW, CLAFLIN & COOK, dealers in boots and shoes, hides, leather, shoemakers' findings, Tanners' oil, Curriers' tools, &c., 412 Main street, (opposite the Bank,) St. Louis, Mo. April, 1851.

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WORTHINGTON G. SNETHEN continues to practice Law in the Supreme Court; to attend to cases before Congress; to prosecute Claims and settle accounts against the Departments and Boards of Commissioners to procure Patents at home and abroad; to obtain Pensions and Bounty lands; to collect debts, dividends, legacies and inheritances in any part of the United States and in *foreign countries*; to make investments of funds in Loans and Stocks and on Bonds and Mortgage, and to negociate the purchase and sale of Loans, Land and Patent-rights in any State of the Union. Particular attention paid to California Land Title cases coming up to the U. S. Supreme Court on appeal.

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TO THE LADIES.

MR. P. A. PIGNERO begs to inform the public, and the Ladies more particularly, that he has taken the store, corner of Fine & Fourth streets, under Planters' House, to which he will remove his establishment for False Hair, of every variety, and for Pomatums, Combs, &c. &c. Mr. Pignero has recently received from the East a large and select lot of Wigs, Cues, and False Hair, manufactured in every style and to suit every taste. He begs for an examination of his stock. The Gentlemen's Shaving and Hair Dressing Saloon will remain at the old stand, opposite the Planters' House.

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B. PHILIBERT,

WASHINGTON Avenue and 14th street, south side, St. Louis, Mo., makes Doors, Sash and Blinds. Also, Door and Window Frames. Terms moderate.
N. B.—Slitting and Planing done here.

E. F. DIETZ,

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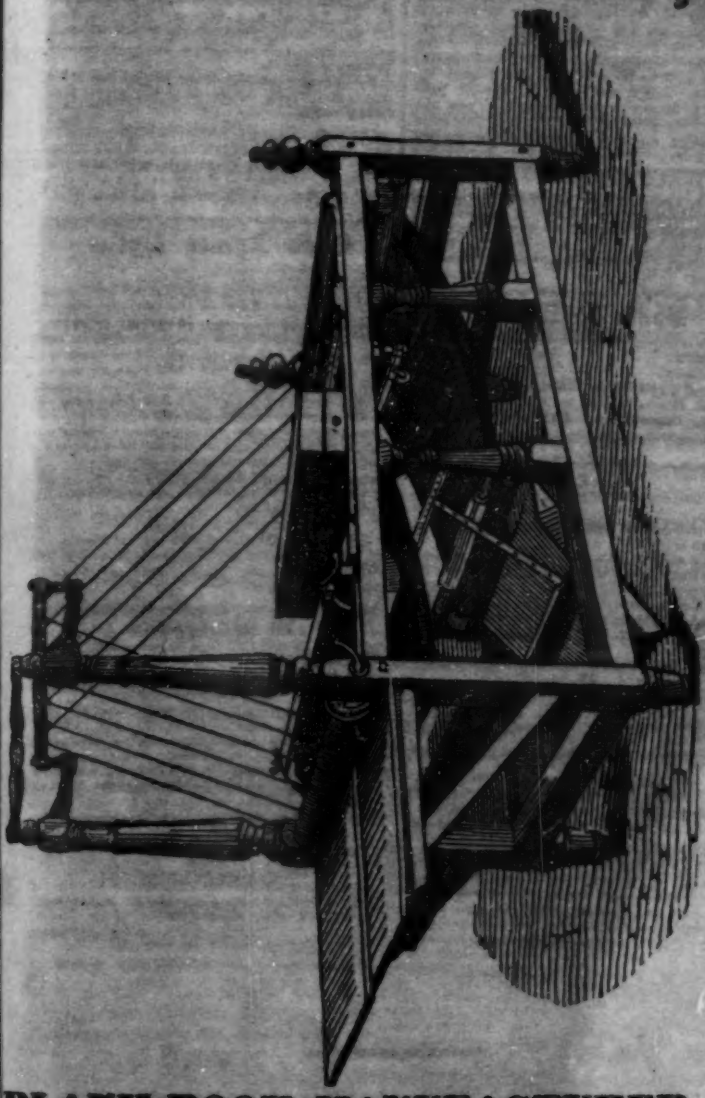

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